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P. A. C - 30th Report
 (5th Lok Sabha) [Action taken
 by Govt. on the recommendations
 of the P. A. C. contained in their
 122nd Report (4th Lok Sabha) on
 the Audit Report (Civil), 1969 and
 Audit Report on the Accounts
 of the Council of Scientific & Industrial
 Research, 1965-66 & 1966-67.

30th (Report, 1971-72
(5th Lok Sabha)

PUBLIC ACCOUNTS COMMITTEE
(1971-72)

CHAIRMAN

Shri Era Sezhiyan

MEMBERS

2. Shri Bhagwat Jha Azad
3. Shrimati Mukul Banerji
4. Shri C. C. Desai
5. Shri K. G. Deshmukh
6. Chaudhari Tayyab Husain Khan
7. Shri Debendra Nath Mahata
8. Shri Mohammad Yusuf
9. Shri B. S. Murthy
10. Dr. Laxminarain Pandey
11. Shri Ramsahai Pandey
12. Shrimati Savitri Shyam
13. Shri Vijay Pal Singh
14. Shri G. Venkatswamy
15. Shri Ram Chandra Vikal
16. Shri S. B. Bobdey
17. Shri B. K. Kaul
18. Shrimati Vidyawati Chaturvedi
19. Shri Jagadish Prasad Mathur
20. Shri Thillai Villalan
21. Shri Shyam Lal Yadav
22. Shri Sheel Bhadra Yajee

SECRETARIAT

Shri B. B. Tewari—Deputy Secretary.

Shri T. R. Krishnamachari—Under Secretary.

INTRODUCTION

I, the Chairman of the Public Accounts Committee, as authorised by the Committee, do present on their behalf this Thirtieth Report on the action taken by Government on the recommendations of the Public Accounts Committee contained in their 122nd Report (Fourth Lok Sabha) on the Audit Report (Civil), 1969 and Audit Reports on the Accounts of the Council of Scientific and Industrial Research, 1965-66 and 1966-67.

2. On the 8th July, 1971, an "Action Taken" Sub-Committee was appointed to scrutinise the replies received from Government in pursuance of the recommendations made by the Committee in their earlier Reports.

The Sub-Committee was constituted with the following Members:

1. Shri B. S. Murthy—*Convener.*
2. Shri Bhagwat Jha Azad
3. Shri Ram Sahai Pandey
4. Shri C. C. Desai
5. Shri Thillai Villalan
6. Shri Shyam Lal Yadav

} *Members*

3. The Action Taken Notes furnished by the Government were considered by the Action Taken Sub-Committee of the Public Accounts Committee (1970-71), at their sitting held on 18th December, 1970. Consequent on the dissolution of the Lok Sabha on the 27th December, 1970, the Public Accounts Committee ceased to exist from that date. The Action Taken Sub-Committee of the Public Accounts Committee (1971-72) considered and adopted this Report at their sitting held on the 29th December, 1971, based on the suggestions of the Sub-Committee of PAC (1970-71) and further information received from the Ministry of C.S. & I.R. The Report was finally adopted by the Public Accounts Committee on the 15th March, 1972.

4. For facility of reference the main conclusions|recommendations of the Committee have been printed in thick type in the body

of the Report—A statement showing the summary of the main recommendations/observations of the Committee is appended to the Report (Appendix).

5. The Committee place on record their appreciation of the commendable work done by the Convener and the Members of the Action Taken Sub-Committee (1970-71) in considering the Action Taken notes and offering suggestions for this Report which could not be finalised by them because of the sudden dissolution of the Fourth Lok Sabha.

6. The Committee place on record their appreciation of the assistance rendered to them in this matter by the Comptroller and Auditor General of India.

ERA SEZHIYAN,
Chairman,
Public Accounts Committee.

NEW DELHI;

March, 1972.

Chaitra 1894 (S).

CHAPTER I

REPORT

1.1. This Report of the Committee deals with action taken by Government on the recommendations contained in their hundred and Twenty Second Report (Fourth Lok Sabha) on the Audit Report (Civil), 1969 and Audit Reports on the Accounts of the Council of Scientific and Industrial Research 1965-66 and 1966-67. Action taken notes have been received on all the 70 recommendations contained in the Report.

1.2. The action taken notes/statements on the recommendations of the Committee have been categorised under the following heads:—

(i) *Recommendations|observations that have been accepted by Government.*

S. Nos. 1, 3-6, 9-10, 13-18, 22-25, 27-47, 49-55 and 57-70.

(ii) *Recommendations|observations which the Committee do not desire to pursue in view of the replies of Government.*

Nil.

(iii) *Recommendations|observations replies to which have not been accepted by the Committee and which require reiteration.*

S. Nos. 8, 19-21.

(iv) *Recommendations|observations in respect of which Government have given interim replies.*

S. Nos. 2, 7, 11-12, 26, 48 and 56.

1.3. The Committee hope that the final replies in respect of those recommendations to which only interim replies have so far been furnished, will be submitted to them expeditiously after getting them vetted by Audit.

1.4. The Committee will now deal with action taken by Government on some of the recommendations.

Expenditure on Pay and Allowance of the staff and contingencies—paragraphs 1.9—1.10 and 1.13 (S. Nos. 1, 2 and 5)

1.5. In paragraphs 1.9, 1.10 and 1.13, the Committee referred to the increase in the establishment expenditure of the Council of Scientific and Industrial Research and made the following observations on the non-research activities and staff:

"The Committee are perturbed over the increase in the establishment expenditure of CSIR. Over the period 1963-64 to 1967-68, the expenditure on this account (including contingent expenditure) increased from Rs. 3.98 crores to Rs. 7.41 crores. The increase was particularly marked at the headquarters office where the expenditure jumped from Rs. 28.71 lakhs to Rs. 47.26 lakhs during this period. These figures leave little room for doubt that there has been a proliferation of non-research activities in the organisation. An Expert Committee which was set up to review the fourth Plan programmes of the CSIR drew pointed attention to this phenomenon when they observed that "the considerable growth in non-research activities of the CSIR" is "consuming a sizeable proportion of the available resources."

"How greatly the non-research staff outnumber the research staff in the organisation would be clear from the figures furnished to the Committee. 30 out of 34 establishments run by C.S.I.R. (in respect of which data has been provided to the Committee) had a total staff of 13,466 in 1968-69. Of this, scientific staff accounted for 3360, or about 25 per cent of the total staff, the balance being accounted for by auxiliary, administrative and class IV staff. The last category of staff alone accounted for about 30 per cent of the total number."

"The C.S.I.R. is an Institution meant for conducting application-oriented research. It is, therefore, essential for the organisation to ensure, as pointed out by the Expert Committee, on Fourth Plan, that "other activities should not be allowed to grow at the expense of this primary function". To achieve this, the Committee would suggest action on the following lines:

- (i) There should be a reclassification of the posts in the organisation by "a broad-based Committee" as suggested

by the Committee of Inquiry, so that only persons actually engaged on research constitute the scientific staff.

(ii) Strict financial discipline should be observed in the creation of new posts and some guidelines provided to the laboratories as to the proportion of scientific staff to the rest of the staff.

The C.S.I.R. have formulated some norms in this regard—1 research worker for 3 supporting technical and administrative staff—but it should be examined whether this could be tightened up further.

(iii) The proportion of Class IV staff is quite obviously high. Further recruitment in this category should be stopped and the scope for absorbing this staff, by suitable vocational training, examined. The Committee note that a start in this regard has been made."

1.6. In their reply dated the 4th December, 1970 the Cabinet Secretariat (C.S.I.R.) had stated:

"Regarding the increase in expenditure of non-research staff, reply to recommendation at Sl. No. 2 (Paragraph 1.10) below may kindly be referred to. The increase in expenditure at the Headquarters Office which is stated to be particularly marked is due to the expansion of the three Technical Divisions at the Headquarters namely (i) Scientific and Technical Personnel Division, (ii) Research Survey and Planning Division, and (iii) Research Co-ordination and Industrial Liaison Division and not due to the increase in House-keeping staff at the Headquarters. A statement giving the increase in pay and allowances of the staff of the three Divisions *vis-a-vis* the House-keeping sections of the Central Office for the years 1964-65 to 1969-70 (as shown in the Table below) bears out the facts.

PAY AND ALLOWANCES

Year	D.S.T.P., R.S.P.D.	R.C.I.L.	Total of the three Divisions	C.O. excluding three Divisions	Total C. O. including all Divisions (Col. 5+Col. 6)	Rupees in Lakhs		
						1	2	3
1964-65	•	•	•	•	•	2.674	1.128	1.368
1965-66	•	•	•	•	•	2.875	2.130	2.375
1966-67	•	•	•	•	•	3.855	3.029	4.025
1967-68	•	•	•	•	•	3.900	2.527	3.993
1968-69	•	•	•	•	•	4.175	2.249	3.794
1969-70	•	•	•	•	•	4.047	2.049	3.243

Note :—

1. The expenditure in 1968-69 is for 13 months while in 1969-70 is for 11 months.
2. The expenditure of Units in 1969-70 is not actual but approximate as there is no separate booking for Units.
3. Total expenditure, however, is actual.

Besides, the increase in establishment expenditure is also on account of the fact that there have been several instalments of increase of dearness allowance and other allowances during the period under consideration which swelled up the expenditure particularly in the lower categories of staff. It has also to be taken note of that disbursement of 13 months' salary in the year 1968-69 has also inflated the figures in comparison to earlier years."

"The observation of the Committee that the non-research staff in the organisation outnumber the research staff needs further examination. To judge the exact number of increase in staff, category-wise, namely, scientific, technical, auxiliary, technical class IV and administrative class IV during the last five years (1966-1971) will be required to be collected from the National Laboratories. The P.A.C. will be informed of the true picture in due course."

"Nevertheless, the observations of the Committee contained at Sl. No. 5 (ii) & (iii) of the Report with regard to the reduction of expenditure on non-research staff and recruitment of Class IV staff have been brought to the notice of the national laboratories for their guidance *vide* CSIR letter No. 16(132)/68-E.I. dated 20th June, 1970 (pp....)."

"The National Laboratories have also been intimated *vide* CSIR letter No. 16(172)/70-E.I. dated 25th September, 1970 (pp.....) that proposals for creating new scientific and technical posts should be more rigorously scrutinised by the Executive Council so as to avoid excessive expenditure on salaries and allowances."

"The Committee of Inquiry (C.S.I.R.) in their Report (Part-I) has recommended:

"The CSIR should reclassify all the existing posts into scientific, technical and administrative according to the criteria mentioned in para 5.15. For this purpose the Governing Body of the CSIR should appoint a broad based Committee."

Accordingly, the Governing Body of the C.S.I.R. at its meeting held on 24th July, 1970 have appointed a broad based committee to consider the reclassification of all the existing posts under the CSIR as recommended by the Sarkar Committee."

1.7. The Committee would like to emphasise the need for economising expenditure on the non-research staff in the Council of Scientific and Industrial Research, including its headquarters. In pursuance of the recommendations of the Committee of Inquiry (Sarkar Committee) the General Body of the Council have appointed

a Broad Based Committee to consider re-classification of all the existing posts into scientific, technical and administrative. The Committee hope that after reclassification of the posts the exact proportion of the non-research staff would be assessed and necessary measures taken to eliminate such staff rendered surplus.

1.8. The Committee desire that as suggested earlier, the CSIR should examine whether the existing norm of 3 supporting technical and administrative staff for every research worker formulated by the Council could be tightened up further. While reviewing the norm, the Council should take into consideration the position obtaining in leading private research institutes in the country.

Role of C.S.I.R. in the Industrial and Applied Research—paragraphs 2.11, 2.13, 4.15—4.18 (S. Nos. 8, 10 and 19 to 22).

1.9 Commenting upon the part played by C.S.I.R. in the Industrial Research, the Committee made the following observations in paragraphs 2.11, 2.13 and 4.15 to 4.18:—

“The Committee are of the view that the CSIR, which was set up with a chain of laboratories to serve as the premier centre for applied industrial research in the country, has failed to establish adequate rapport with industry. The expenditure on this organisation since the beginning of the Plans has amounted to Rs. 146.76 crores but the returns on this investment have been meagre.”

“It is not only the commercial sector which has remained aloof from the laboratories. The Kane Committee pointed out that “there was considerable reluctance even by Government Departments to sponsor research at the national laboratories.” The Central Fuel Research Institute, was set up in close proximity to the Sindri Fertilisers which, however, preferred to establish its own planning and development department. The Kane Committee found “little liaison” between these two research units in their work.”

“The C.S.I.R. is an institution meant for conducting applied industrial research. The Committee, therefore, feel that success in its work will have to be judged by the extent to which the processes developed in its laboratories find application in industry. On this criteria, it must be said that the Institution’s achievements so far have been very modest.”

“The position in this regard would be evident from the data regarding utilisation of the results of research in the laboratories which has been furnished by the C.S.I.R. As on 1st April, 1967, 135 processes developed in the laboratories

and released to various parties were in production (some of them on a token scale), as against which 95 other released processes had not gone into production, 23 of them since 1964 or even earlier years. Another 240 processes developed in the laboratories had found no takers. The position does not seem to have improved in subsequent years as would be seen from the data given in this section of the Report."

"To what extent the laboratories made a dent on industrial production could be estimated from the fact that the value of the products turned out by the processes released amounted to Rs. 453 lakhs in 1966-67 as against the national industrial output of about 5,000 crores and an expenditure of Rs. 146.76 crores incurred by C.S.I.R. on its activities since the First Plan started. These figures speak for themselves."

"The Fact that a large number of processes have not gone into production indicates that research efforts in the laboratories lack proper direction and are carried on without regard to the needs and requirements of industry. This is a very vital deficiency which calls for immediate correction. A closer tie-up with industry while formulating and implementing research programmes in the laboratories is very clearly indicated."

1.10. In their reply dated the 5th December, 1970, the Cabinet Secretariat (CSIR) had stated:

"From its very inception the CSIR has been making efforts to maintain relationship with the industry.....

"Providing adequate R & D facilities and creating a proper scientific climate are the essential prerequisites of a country which is striving for modernisation and industrialisation. It is not feasible to correlate directly the expenditure involved in creating these basic facilities with quantifiable returns. Yet, with the rising expenditure on R & D questions are increasingly being asked as to the quantifiable gains derived from such investments. This is not peculiar to India, in fact such queries are also raised in most of the advanced countries. In developing countries, with diverse problems particularly integration between R & D and economic development is not as easy to start assessing in monetary terms the returns accruing from R & D investments. What is important is that work

in research laboratories should be related to the needs of the country and this is what CSIR is attempting. Consequently, most of the contributions of national laboratories cannot be evaluated in quantifiable terms."

"The establishment of commodity and discipline oriented laboratories has increased scope and opportunity for a large number of scientists to work on various scientific and technological problems for which hitherto or till recently hardly any facility existed in the country. The creation of facilities and proper climate for research in various disciplines has thus increased very substantially the scientific potential and capability of the country in the form of readily available expertise in almost every field. The pooling of specialised knowledge has made it possible for the CSIR Laboratories to act as technical experts and consultants to Central and State Governments, and several public and private sector industries. The scientists of the CSIR Laboratories in collaboration with the Indian Standards Institution are closely associated with the formulation of standards for various items and equipment with a view to improving and maintaining the quality of indigenous manufacturers."

"The CSIR has also established facilities in such branches where little scope existed earlier, for example geo-physics, petro-chemical technology, industrial toxicology, oceanography, aeronautics, structural engineering etc."

"In addition, CSIR has been giving substantial support to the universities and research institutions by providing grants for research in selected projects and research fellowships. Over Rs. 1 crore is annually spent under this head for building up scientific capability in various branches of science. The Council's extramural research grants, including grants to industrial Research Associations have increased almost twenty times during the past two decades from Rs. 15 lakhs in 1950-51 to Rs. 87 lakhs in 1960-61 and to Rs. 286 lakhs in 1968-69. The share of extramural grants out of the total expenditure incurred by the CSIR in 1968-69 was 15.1 per cent."

"Amongst the non-quantifiable benefits, mention may be made of the systematic surveys conducted by the CSIR Laboratories on minerals and other natural resources, evolving processes for upgrading or beneficiation, increasing the overall resources by blending of fast depleting

mineral resources with more abundant ones, and indicating ways of making improvements in the quality of products and reducing costs."

"The achievements of CSIR Laboratories have to be viewed in this background."

2.13. "So far as the C.S.I.R. is concerned user departments of Government are included in Scientific Sub-Committees, Expert Panels and Executive Councils of the national laboratories, the Board of Scientific and Industrial Research and the Governing Body. These bodies are responsible for the control and the general direction of work of the national laboratories within the frame-work of rules and regulations. Thus the user Government Departments are fully represented on the bodies responsible for drawing up the programme of the national laboratories."

"The question of liaison should not merely be considered responsibility of the laboratory and its scientists but also of the users. Why are they, even when facilities are available and acknowledged by foreigners, going abroad for all kind of advice and assistance. It has to be a two way business. There cannot be liaison from one side only. The cause of reluctance does not always lie with the laboratory, but in many cases with the attitudes to rely more on foreign agencies than our own. The establishment of a planning and development department by Sindri Fertilizers is a very welcome thing. A big undertaking like the Sindri must have its own development Deptt. The C.F.R.I. cannot undertake all type of work and development in particular is an activity of individual undertaking. Planning for production has to be done by the production units themselves. Central Fuel Research Institute is not a wing of Sindri Fertilizers. It is a National Laboratory and for serving the entire nation both private and public sectors."

"The 'little liaison' between the Central Fuel Research Institute, Jealgora and the Sindri Unit of the Fertilizer Corporation of India (FCI) which is stated to be particularly marked in the recommendation, the views of the Director, Central Fuel Research Institute in this connection are at page 24."

"The principal ways in which national laboratories can help in developing resources, promoting growth and accelerating progress of industry are:—

- (i) Systematic investigation of raw materials, minerals and plants and their evaluation, beneficiation etc;
- (ii) undertaking of scientific principles underlying technological operations leading to improved quality, reduced cost of production and higher productivity;
- (iii) adaptation to Indian environment and needs known and available knowledge;
- (iv) Creation of new knowledge leading to new products and processes and improvement of existing ones; and
- (v) development of skills which are basic for all the above."

"The National Laboratories have gained valuable knowledge which they have been providing to Government ministries and organisations, private and public sector undertakings in regard to raw materials and beneficiation. Truly commendable work has been done in this regard. Development of skills in many new directions which did not exist before in this country has also been done. Adaptation work to apply known knowledge to Indian conditions has also been carried out on a substantial scale. Creation of new knowledge leading to new products and processes is a relatively complicated task and, perhaps, in our present situation crying for quick industrialization does not call forth the same priority as the other aspects mentioned. The development of know-how for new products and processes has to undergo a whole sequence of operation from bench scale research to large scale operation in the production plant such as Research, Development, Engineering, Production, and its after sales services etc. The research laboratories can only deal with the first one and partly the second item of the sequence. In the whole of process and product development, it is the subsequent aspects such as engineering, design fabrication and the erection of plant, production management and modern marketing techniques which are important to ensure that a research idea becomes fruitful. These aspects are the primary responsibility of industry, these need institutional and organisational support. In the absence of industry taking it up in a big way, CSIR has tried to meet the situation which existed in the country and also to translate the results of researches into commercial production. There have been some failures and there will always be some in any organisation and venture but it has provided valuable lessons both to the laboratories and to the industry. It is now being increasingly realized that consultancy and engineering organisations

should come in to fill the gap and industry itself must assume greater responsibility for process and product development. It is competition and compulsion of circumstances that can induce industry to take greater interest in this regard and not go every time abroad for turn-key jobs."

"All inventions do not lead to innovation. According to international standards less than 1 per cent of ideas, thought worthy of further industrial research or development, are actually embodied in new processes or new products."

"In Western countries industrial research and production are integrated. Such close collaborations between research and industry is not obtaining in India. Industrial research activities are concentrated in Government sponsored research establishments and most industries are based on foreign collaboration. The collaboration are generally on turn-key basis and hence dependent on foreign R & D. Further, quite a number of industries enjoy a sellers' market and would not be enthusiastic in utilising results of research. The situation, however, is slowly, but surely, changing."

"The achievements of CSIR laboratories and the utilisation of the know-how developed by them need to viewed under aforementioned background.

From the beginning, the Council has been endeavouring to establish links with different sectors of industry. Some of the CSIR laboratories have set up industrial liaison and extension units to promote contracts with industry and stimulate interest in processes and products developed through research. The industry also sponsors projects at the National Laboratories/Institutes and utilises the facilities in solving some of their problems.

The efforts of the laboratories are supplemented by the office of the Director-General at New Delhi which maintains contacts with manufacturers' and trade associations, Ministries of Industry, Defence, Railways, Health, and Food and Agriculture, and also with various user departments of the Government. CSIR is also associated with the work of the Industrial Licensing Committee and also the Foreign Agreements Committee of the Ministry of Industrial Development and Company Affairs. The CSIR apprises

the Committee of progress achieved in research and development and the availability of indigenous know-how for various commercial processes and products.

The co-operation and advice of industry are obtained in the formulation of research programmes and selection of research projects. Representatives of industries, manufacturers' organisations and user departments of Government are included in Scientific Sub-Committees and Executive Councils of national laboratories, the Board of Scientific and Industrial Research and the Governing Body of the Council. Expert panels with representatives of industries are also constituted to advise individual laboratories on research programmes. The Governing Body of the Council, has, in recent years, urged that research projects in national laboratories should be scrutinized with respect to their utilization aspect and high priority should be given to those which have relevance to defence, food production, export promotion and import substitution.

The national laboratories pay special attention to the communication of research information to industry. Research papers published in scientific journals as such are not very effective as far as industry is concerned. To be effective, information must be selected and suitably processed and adapted to the identified needs of the user, and communicated in a language and idiom which the user understands and appreciates and in a manner which will create an impact and promote action; the object is to 'sell' information. Many of the laboratories publish reports, pamphlets and brochures, containing processed information. Open days and workshops and exhibitions are other means employed for communicating research information. Conferences and symposia are organized to provide an opportunity for scientists in the national laboratories and technical personnel in industry to meet and exchange information and discuss projects and problems.

Information on research projects of CSIR laboratories is communicated to industry by the CSIR headquarters through a quarterly newsletter and also personal contacts. A Technical Information Centre has been set up at Bombay as an experimental measure in collaboration with the Indian Chemical Manufacturers' Association to ensure closer contact between research laboratories and industry. The

centre has undertaken collection of data on chemical industries in the country and publishes a monthly newsletter.

In this way the industry is associated at the time of formulation of programmes in the national laboratories and is kept fully informed of the progress of work there."

Coordinating meetings with groups of industries

"The proposals of the CSIR for the fourth five year Plan which are largely application oriented have been prepared after duly consulting the industry. In its efforts to bring the laboratories and industries together, the CSIR arranged discussions in 1968, 1969 and 1970 between representatives of CSIR laboratories, DGTD, Planning Commission, Defence, industry, and industrial associations in respect of problems of specific groups of industries viz. scientific instruments, electronics industry, chemical industry, drugs and pharmaceuticals, non-ferrous metals and plastics. The various suggestions were also fed back to the laboratories so that the national laboratories can play an effective role in the development of industry and the limited resources available could be gainfully utilised."

Machinery for continuous Thinking

"With a view to providing continuous thinking and guidelines to CSIR laboratories to plan their future programmes, a Committee has been set up by the Vice-President, CSIR, particularly from the point of view of coordinating the work of CSIR laboratories with public sector and private sector industry....."

1.11. The Committee wish to reiterate that the results of the research work done by the Council of Scientific and Industrial Research are not commensurate with the expenditure on the organisation. According to Council's own admission the requisite integration of research and production as obtaining in Western countries is lacking in India. As regards liaison between Industry and Research it is stated that it should not merely be considered the responsibility of the laboratory and its scientists but also of the users and that in many cases reliance is placed by the latter more on foreign agencies than on our own. The Committee, therefore, desire that Government should investigate the reasons for preference of public and private sector industries for foreign collaboration and take necessary steps

so that indigenous processes may commend themselves to these industries in future.

1.12. The Committee find that in some cases parallel facilities for research are created in individual industries. As there is admitted lack of coordination it is upto the Government in the various Ministries to ensure proper utilisation of the facilities created under the CSIR avoiding duplication of research activities. The Committee hope that necessary instructions will be issued in this regard to all the user Ministries.

Low rate of Royalty on the processes released to industry—paragraphs 4.41 (S. No. 27).

1.13. Commenting on the fixation of royalties on processes released to industries, the Committee made the following observation in paragraph 4.41 (S. No. 27):—

"The Committee would also like the Corporation to evolve some rational criteria for fixation of royalties on processes released to industries. In a very profitable line of production like Television receivers, for instance, the recurring royalty has been just 2 per cent of ex-factory sales. This return must be considered meagre when it is weighed against royalty rate of 5 per cent to 10 per cent allowed to foreign parties from whom know-how is generally acquired in the country on collaboration basis. The matter, in the Committee's opinion, needs re-examination."

1.14. In their reply dated the 21st November, 1970 the Cabinet Secretariat had stated:

"In fixing the royalties on processes released to industries, N.R.D.C. is guided by the advice of the laboratories and the best available offers. In view of the general reluctance on the part of Indian entrepreneurs to adopt indigenous technology and their pronounced preference for imported ones, N.R.D.C. is unable to obtain advantageous terms. However, every efforts will be made to persuade acceptance of indigenous technology by continuous after-sale-service of the processes."

"One important reason for higher royalties paid in the case of foreign collaboration is that the foreign collaboration agreement contain performance guarantees. Neither our laboratories nor N.R.D.C. are now in a position to provide this guarantee which explains the lower royalties paid to

N.R.D.C. than to foreign collaborators. N.R.D.C. will address itself to the question of filling up the lacunae, in consultation with the C.S.I.R., D.G.T.D. etc."

1.15. The Committee appreciate that the absence of performance guarantees in the case of the processes of the CSIR released to the Industry results in a lower rate of royalty paid to NRDC than to foreign collaborators. The Committee hope that the NRDC will expeditiously examine the question of filling up the lacunae in consultation with the Council of Scientific and Industrial Research and Director General, Technical Development etc.

Establishment of Coal Gasification Plant at Hyderabad—Paragraphs 5.43—5.51 (S. Nos. 40 to 48).

1.16. In paragraphs 5.18 to 5.51 of the Report, the Committee dealt with the establishment of a coal gasification plant at the Regional Research Laboratory, Hyderabad. The project was approved in November, 1962 at an estimated cost of Rs. 21 lakhs but the estimates were revised to Rs. 189 lakhs in October/November 1966. An Expert Committee recommended in January 1968 cancellation of orders for the undelivered equipment and machinery and disposal of the equipment already received. The Committee made the following observations in paragraphs 5.43 to 5.51 :—

"In the Committee's opinion, the coal gasification project started at Hyderabad, is a glaring example of mismanagement, culminating in waste of public funds given for scientific research."

"In the first place, there was a confusion about the objectives of the Project. As pointed out by the Kane Committee, it was "never clear whether the plant was to be established to produce synthesis gas for production of ammonia or industrial and domestic gas to be supplied to the city of Hyderabad." As initially approved, the project envisaged the installation of a continuously operating plant that would produce synthesis gas or equivalent fuel gas. In successive revisions of the estimates for the project that thereafter occurred, provision was made for additional units which were necessary only for a scheme which envisaged supply of town gas or industrial gas. However, items like distribution lines, gas meters, burners etc., which were essential for such a scheme were left out. Moreover, in the final estimate there was no provision

even for a conversion unit without which, according to the Kane Committee, production of synthesis gas was also not possible."

"In the second place, the estimates for the project were not drawn up with care, with the result that by stages the cost escalated from Rs. 21 lakhs to Rs. 1.89 crores. How faulty the estimating was would be evident from the fact that the first estimates were approved before the laboratory had even ascertained the cost of the equipment from the suppliers."

"Thirdly, the equipment that was ordered was a semi-commercial scale unit of a type which had been successfully developed for commercial operation overseas. If the idea of the project was to study gasification characteristics of coal, a smaller plant on a laboratory scale might have sufficed. The CSIR have themselves admitted that "instead of choosing the step of developing a gasification process *de novo* and proving it on a small plant and taking it on to an intermediate scale pilot plant, the other alternative of buying an intermediate scale plant based on the best know-how available.....was chosen." It is clear therefore that the project was undertaken on a much larger scale than necessary."

"Fourthly, orders for the imported equipment were placed shortly before a large-scale revision of estimates, which raised its cost from Rs. 45.50 lakhs to Rs. 189 lakhs, took place. This was not prudent, as it committed the CSIR irretrievably to the project."

"In the fifth place, a pilot plant involving such a substantial investment was proceeded with, without securing the association of prospective users of the process with the venture.

"Lastly, due to a failure of coordination, the fact that a similar pilot plant had been successfully commissioned in another laboratory, escaped noticed both at the time the project was sanctioned and at a subsequent stage when the revised estimates were approved. It is regrettable that when the equipment with that laboratory was capable of being used for the purpose of this venture, orders were

unnecessarily placed for a similar equipment for this project."

"The cumulative result of all these lapses has been an infructuous expenditure of Rs. 35.12 lakhs with further commitments to the tune of Rs. 33.33 lakhs. Costly equipment imported for the project lies unpacked with the danger of its being rendered absolutely useless."

"The Committee would like a comprehensive investigation to be made into the case to pinpoint responsibility. Steps should also be taken forthwith for the disposal of the equipment, if there is no further use for it, so as to avoid further losses."

1.17. In their reply dated the 5th December, 1970 the Cabinet Secretariat had stated :—

"The observations of the Committee have been brought to the notice of the Director, Regional Research Laboratory, Hyderabad *vide* letter No. 3/3/69-PU. Vol. III, dated 31st October, 1970."

"As already mentioned in the report the matter is still under consideration of the President, CSIR. An investigation, if required will be made to find out whether any responsibility is to be fixed. The PAC will be advised in the matter in due course."

1.18. The Committee are of the opinion that there should be an investigation into the installation of the Coal Gasification Plant in the Regional Research Laboratory, Hyderabad with a view to fixing responsibility and they would like this to be expedited.

1.19. The Committee would like to be informed about the progress made in utilisation/disposal of the plant and equipment.

CHAPTER II

RECOMMENDATIONS/OBSERVATIONS THAT HAVE BEEN ACCEPTED BY GOVERNMENT

Recommendation

The Committee are perturbed over the increase in the establishment expenditure of CSIR. Over the period 1963-64 to 1967-68, the expenditure on this accounts (including contingent expenditure) increased from Rs. 3.98 crores to Rs. 7.41 crores. The increase was particularly marked at the headquarters office where the expenditure jumped from Rs. 28.71 lakhs to Rs. 47.26 lakhs during this period. These figures leave little room for doubt that there has been a proliferation of non-research activities in the organisation. An Expert Committee which was set up to review the Fourth Plan programmes of the CSIR drew pointed attention to this phenomenon when they observed that "the considerable growth in non-research activities of the CSIR" is "consuming a sizeable proportion of the available resources."

[Sl. No. 1 (Para 1.9) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

Regarding the increase in expenditure of non-research staff, reply to recommendation at Sl. No. 2 may kindly be referred to. The increase in expenditure at the Headquarters Office which is stated to be particularly marked is due to the expansion of the three Technical Divisions at the Headquarters namely: (i) Scientific and Technical Personnel Division, (ii) Research Survey and Planning Division, and (iii) Research Co-ordination and Industrial Liaison Division and not due to the increase in House-keeping staff at the Headquarters. A statement giving the increase in pay and allowances of the staff of the three Divisions *vis-a-vis* the House-keeping sections of the Central Office for the years 1964-65 to 1969-70 is attached to bear out the facts.

Besides, the increase in establishment expenditure is also on account of the fact that there have been several instalments of increase of dearness allowance and other allowances during the period under consideration which swelled up the expenditure particularly in the lower categories of staff. It has also to be taken note of that disbursement of 13 months' salary in the year 1968-69 has also inflated the figures in comparison to earlier years.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) O.M. No. 3/3/69-PU. Vol. III Pt. II dated 8th December, 1970].

PAY AND ALLOWANCES

Year 1	D.S.T.P. 2	R.S.P.D. 3	R.C.I.L. 4	Total of the three Divisions 5	C.O. exclu- ding three Divisions 6	Total C.O. including all Divisions (Col. 5+Col. 6)	Total con- tingencies for Central Office 7	Rupees in lakhs 10
								8
1964-65	2.674	1.128	1.368	5.170	19.645	24.815	10.323	
1965-66	2.875	2.130	2.375	7.380	21.316	28.696	14.142	
1966-67	3.855	3.029	4.025	10.909	21.160	32.069	15.065	
1967-68	3.900	2.527	3.993	10.420	23.062	33.482	13.778	
1968-69	4.175	2.249	3.794	10.218	25.552	35.770	16.173	
1969-70	4.047	2.049	3.243	9.339	22.586	31.925	19.116	

Note :— 1. The expenditure in 1968-69 is for 13 months while in 1969-70 is for 11 months.
2. The expenditure of Units in 1969-70 is not actual but approximate as there is no separate booking for Units. Total expenditure, however, is actual.

Recommendation

In the absence of a definite distinction in the organisation between scientific, technical and administrative posts, it is clear that the proportion of scientific staff actually employed is even less than that disclosed by the foregoing analysis. The Committee of Enquiry have pointed out that in C.S.I.R. "quite often person have been given scientific designations in divisions concerned with purchase, stores, publicity, publications, library information etc., when, from an analysis of their work and record, it would appear that they are clearly performing administrative/technical tasks." That Committee observed that this had been done because scientific posts "carry comparatively higher salaries and....because creation of administrative posts requires the concurrence of the Financial Adviser which is not necessary for scientific posts." It is obvious that if the posts are "classified strictly on a functional basis," as suggested by that Committee, it would be found that the organisation carries a larger number of non-research staff than available figures suggest.

[Sl. No. 3, (Para 1.11) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

The Committee of Inquiry (C.S.I.R.) in their Report (Part-I) has recommended:

"The CSIR should reclassify all the existing posts into scientific, technical and administrative according to the criteria mentioned in para 5.15. For this purpose the Governing Body of the CSIR should appoint a broad based committee."

Accordingly, the Governing Body of the C.S.I.R. at its meeting held on 24th July, 1970, have appointed a broad based committee to consider the reclassification of all the existing posts under the CSIR as recommended by the Sarkar Committee.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3|3|69-PU. Vol. III. Pt. II dated 8-12-1970].

Recommendation

The Committee are left with the impression that neither the C.S.I.R. nor the laboratories have made any sustained efforts to control the expenditure on establishment. The Committee of Enquiry drew attention to 'Several cases where posts were created without

due scrutiny' and also to the fact that 'on some occasions posts were created to provide higher pay to existing incumbents'. This coupled with the tendency to classify non-research staff as scientific staff thereby extending to them 'certain special benefits apparently intended for scientists engaged in research' has tended to push up the establishment expenditure for the organisation.

[Sl. No. 4, Para No. 1.12 of Appendix to the 122nd Report of PAC—(Fourth Lok Sabha)].

Action Taken

Necessary action on the recommendation of the Enquiry Committee (CSIR) referred to above by the PAC Committee has already been taken, details of which are given in reply to recommendations at Sl. Nos. 2 & 3 of the Report.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III/Pt. II dated 8-12-1970].

Recommendation

The C.S.I.R. is an Institution meant for conducting application-oriented research. It is, therefore, essential for the organisation to ensure, as pointed out by the Expert Committee, on Fourth Plan, that "other activities should not be allowed to grow at the expense of this primary function". To achieve this, the Committee would suggest action on the following lines:

- (i) There should be a reclassification of the posts in the organisation by "a broad-based Committee" as suggested by the Committee of Inquiry, so that only persons actually engaged on research constitute the scientific staff.
- (ii) Strict financial discipline should be observed in the creation of new posts and some guidelines provided to the laboratories as to the proportion of scientific staff to the rest of the staff. The C.S.I.R. have formulated some norms in this regard—1 research worker for 3 supporting technical and administrative staff—but it should be examined whether this could be tightened up further.
- (iii) The proportion of Class IV staff is quite obviously high. Further recruitment in this category should be stopped and the scope for absorbing this staff, by suitable vocational training, examined. The Committee note that a start in this regard has been made.

[Sl. No. 5 (Para 1.13) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

Kindly see reply to recommendation at Sl. Nos. 2 & 3 of the Report.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III/Pt. II dated 8-12-1970].

Recommendation

The Committee are surprised that the recommendations of the Third Reviewing Committee of the CSIR for establishing four units at the CSIR's headquarters to strengthen industrial liaison should have been construed to mean that these units should be on the pattern of national laboratories with their own Executive Councils. The Finance Sub-Committee of CSIR had specifically desired in 1965 that this proposal should be placed as a separate item before the Governing Body of the CSIR. This was not done and the proposal was merged with Fourth Plan proposals with the result that it never came up specifically for consideration by the Governing Body. The result was that there was an expansion in staff strength at headquarters ranging from 18 per cent to 933 per cent. The Committee note that it has since been decided that the Directorates should now form part of the Headquarter establishment and function as divisions without Executive Councils or the powers enjoyed by the Directors of National Laboratories.

[Sl. No. 6 (Para 1.19) of Appendix to the 122nd Report (Fourth Lok Sabha)].

Action Taken

The observations of PAC have been noted.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III/Pt. II dated 4-12-1970].

Recommendation

How isolated the organisation is from the country's industrial milieu and how feeble its impact on industrial production would be evident from the findings in a later section of this Report. The Kane Committee expressed the view that facilities created in the national laboratories located near industrial centres have remained unused by industries, despite representation of industrial interests on the Executive Councils of the laboratories, scientific sub-committees, Advisory Panel etc. As an illustration of this situation, they cited

the National Metallurgical Laboratory at Jamshedpur, where not a single pilot project was sponsored by the steel industry in that area. On the other hand the industry preferred to develop its own research centres on a large scale.

[Sl. No. 9 (Para 2.12) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

The observation of the Committee has been taken note of Regarding the low shaft furnace Plant, at National Metallurgical Laboratory, Jamshedpur, reply to recommendation at Sl. No. 53 of Appendix to the Report may kindly be referred to.

[Cabinet Secretariat, Department of Scientific & Industrial Research (CSIR) No. 3/3/69-PU, Vol. III Pt. II dated 4th December, 1970].

Recommendation

It is not only the commercial sector which has remained aloof from the laboratories. The Kane Committee pointed out that "there was considerable reluctance even by Government Departments to sponsor research at the national laboratories." The Central Fuel Research Institute, was set up in close proximity to the Sindri Fertilisers which, however, preferred to establish its own planning and development department. The Kane Committee found "little liaison" between these two research units in their work.

[Sl. No. 10 (Para 2.13) of Appendix to the 122nd Report—Fourth Lok Sabha)].

Action Taken

So far as the C.S.I.R. is concerned user departments of Government are included in Scientific Sub-Committees, Expert Panels and Executive Councils of the national laboratories, the Board of Scientific and Industrial Research and the Governing Body. These bodies are responsible for the control and the general direction of work of the national laboratories within the frame-work of rules and regulations. Thus the user Government Departments are fully represented on the bodies responsible for drawing up the programme of the national laboratories.

The question of liaison should not merely be considered responsibility of the laboratory and its scientists but also of the users. Why

are they, even when facilities are available and acknowledged by foreigners, going abroad for all kind of advice and assistance. It has to be a two way business. There cannot be liaison from one side only. The cause of reluctance does not always lie with the laboratory, but in many cases with the attitudes to rely more on foreign agencies than our own. The establishment of a planning and development department by Sindri Fertilizers is a very welcome thing. A big under taking like the Sindri must have its own development Deptt. The C.F.R.I. cannot undertake all type of work and development in particular is an activity of individual undertaking. Planning for production has to be done by the production units themselves. Central Fuel Research Institute is not a wing of Sindri Fertilizers. It is a National Laboratory and for serving the entire nation both private and public sectors.

The 'little liaison' between the Central Fuel Research Institute, Jealgora and the Sindri Unit of the Fertilizer Corporation of India (FCI) which is stated to be particularly marked in the recommendation, the views of the Director, Central Fuel Reserach Institute in this connection are attached.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III/Pt. II dated 8-12-1970].

Extract from letter No. Pub./11/70 dated 24th November, 1970 from Dr. A. Lahiri, Director, Central Fuel Research Institute, Jealgora, to the Secretary, C.S.I.R.

SUBJECT:—122nd Report of the PAC (Fourth Lok Sabha).

As regards our own actions, we have offered every opportunity to the Sindri Unit to the Fertilizer Corporation of India (FCI). We have placed senior officers of FCI both on our Executive Council and our Scientific Committee and Departmental Panels for programme research, etc. They have not, however, utilised our services except for certain paid testing on earlier occasions. Even when a guaranteed test was undertaken, the CFRI's services were utilised only for certain routine testing, but we were not allowed to be associated with such test when the coke oven was built. To our knowledge, there were failures on the part of contractors which could not be finalised due to mistakes on the part of the purchaser in drawing up specifications.

Similarly, when the producer gas plants were tendered, we were not associated. Perhaps we could have helped them in saving considerable losses, but again, we could not force our services on them. We had looked for opportunity for cooperation rather than fighting.

We have found however, that consistently there has been migration of our qualified staff to FCI and they perhaps feel that, by this, they can get more out of our organisation than by commissioning us with their work.

Earlier, on an occasion when we developed a product for sulphur purification and offered it to the Sindri Unit of FCI instead of giving us the credit, a modification of the product was developed by them after we disclosed all our details, although our product is widely acclaimed in the industry and is used even by the Neyveli Fertilizers for their gas purification.

I might say that the lack of liaison is not only with the FCI but with others as well. For example, although we had been instrumental in sponsoring the great Neyveli Project and I had been a member of its Technical Panel for many years, when the question of designing the plant and equipment came, we were completely kept out of the picture. The same was true at Rourkela, where we were not consulted at any stage. The results are already well-known: neither Rourkela nor the Sindri Unit of FCI could achieve even 50 per cent of their production for many years, chiefly due to defective design of gasification plant.

We had expected that the FCI will approach us when a decision was taken for setting up coal-based fertilizer plants. I offered our services to their chief officers in the presence of the Minister of Petroleum & Chemicals and Mines & Metals; but, so far, we have not been formally approached. Later, when a West German Mission visited India in connection with an Aid Programme and sought our advice, a very difficult situation was created. The Ministry took certain exceptions to the technical opinion given by us to the German Mission. We had tried to clarify this position. It would not be in the interest of mutual co-operation to disclose details of these correspondence; but, if necessary, these could be submitted which will clarify our position.

Recommendation

The Committee feel that there is need for revamping the research programmes of laboratories so as to bring them in tune with the priorities arising out of the country's developmental Plans. A Committee set up to review the Fourth Plan proposals of the C.S.I.R. took note of the general feeling that "some of the re-

search laboratories had undertaken programmes over a wide range of subjects and that there was great scope of regulating the research programmes in the light of national priorities." If this to be successfully achieved the Committee feel that there should be close and continuous contact between the CSIR and organisations like the Planning Commission and the Director-General of Technical Development. A suggestion worth consideration in this context is the proposal made by the Administrative Reforms Commission that the administrative control over CSIR should be shifted to "such a position as will ensure a continuous dialogue between CSIR laboratories and their user industries." The Committee note that this suggestion is already receiving Government's attention.

[Sl. No. 13 (Para 2.28) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

With a view to providing continuous thinking and guidelines to CSIR laboratories to plan their future programmes, a Committee has been set up by the Vice-President, CSIR, with the following members particularly from the point of view of coordinating the work of CSIR laboratories with public sector and private sector industry:

1. Shri R. Venkataraman,
Member (Industry).
Planning Commission, Chairman
2. Shri K. B. Rao,
Adviser (Industry & Minerals),
Planning Commission.
3. Dr. S. R. Pramanik,
Assistant General Superintendent,
(TA), Durgapur Steel Plant.
4. Shri D. M. Trivedi,
Project Manager,
Synthetics & Chemicals Ltd.,
Bombay.
5. Shri M. Panikkar,
Electronics Division,
Mahindra & Mahindra Ltd.,
Bombay.

6. Dr. B. D. Kalekar,

Director-General, Technical Development,
Shri M. M. Vadi, Offg: Director-General,
Technical Development.

7. Shri T. R. Gupta,

1, Ballygunge Park Road,
Calcutta.

8. Dr. Atma Ram,

Director-General, CSIR.

At their meeting held on 18th August, 1969, the Expert Committee constituted Sub-Groups for identifying problems in the following fields:—

1. Steel.....Dr. S. R. Pramanik (Convener) and Directors of NML, CFRI.
2. Chemicals.....Shri D. M. Trivedi (Convener) and Directors of NCL, RRL—Hyderabad, RRL, Jorhat, RRL, Jammu, CEERI, CSMCRI, CFRI, CDRI.
3. Instruments.....Shri M. Panikkar (Convener) and Directors of NPL, CSIO and CEERI.

The Committee have been deliberating with representatives of concerned laboratories and specialised industries and outside scientific experts, to identify priority problems to be taken up for R & D work in CSIR laboratories and a number of meetings have already been held.

[Cabinet Secretariat, Department of Scientific & Industrial Research (CSIR No. 3|3|69-PU. Vol. III. (Pt. II) dated 11-11-1970].

Recommendation

In any plan for re-orienting research work in the laboratory, the Committee feel that the needs for import substitution and export promotion should receive major emphasis. This would be facilitated only if the Director-General, Technical Development keeps in close contact with the organisation and refers to the laboratories specific proposals in the field.

[Sl. No. 14 (Para 2.29) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The Governing Body of the CSIR at their meeting held on 7.10.65 urged that research projects in national laboratories|Institutes should be scrutinised with respect to their utilisation aspect and high priority should be given to projects which have relevance to defence, food production, export promotion and import substitution. Progress of work under various projects in national laboratories is kept under continuous review.

At the meeting of the Governing Body of the CSIR on 25th November, 1967, the President, CSIR indicated that the Planning Commission had decided to prepare the Fourth Five Year Plan effective from 1969-70 and suggested that this opportunity might be availed of by the CSIR to prepare specific proposals which should ensure better utilisation of the results of research. The President, CSIR, also desired that there should be closer link between the CSIR and the Planning Commission and Scientists should be associated with the process of planning.

The proposals of the CSIR for the Fourth Five Year Plan which are largely application oriented have been prepared after an intensive exercise at the laboratory level in consultation with the Executive Councils.

In its efforts to bring the laboratories and industries together the CSIR Headquarters arranged discussions in 1968, 1969 and 1970 between representatives of CSIR laboratories, DGTD, Planning Commission, Defence, Industry and industrial associations in respect of important problems of specific group of industries viz. scientific instruments, electronics industry, chemical industry, drugs and pharmaceuticals, non-ferrous metals and plastics.

The Vice-President, CSIR also invited suggestions from all user Ministries and Departments of Government. Suggestions received from the Ministries of Defence, Food and Agriculture Industry, Communications, Railways, Information and Broadcasting, Labour and Employment etc. have been incorporated in the proposals apart from those which were already included in the existing programmes.

Identification of projects of export interest:

A Committee consisting of Experts from the Ministry of Foreign Trade and Supply, Ministry of Economic Affairs and the Indian Institute of Foreign Trade was constituted to examine Fourth Plan projects particularly from the economic and export angle. Several meetings of the Committee have been held. As a result of the delibera-

tions at the meetings and in consultation with the Indian Institute of Foreign Trade, a tentative list of projects of export interest has been worked out.

The list has been forwarded to the Ministry of Foreign Trade and Supply who have been requested to get it examined by the R & D Cells of the Export Promotion Councils from the export, economic and sales point of view. The projects after having been finally approved will be suitably incorporated in the plan.

Central Machinery to help the National Laboratories to draw up their programmes.

A Central Mechanism has been set up under the Chairmanship of Member (Industry) Planning Commission and the representatives who are concerned with Planning in public and Private sectors of industry to provide continuous thinking to the laboratories to plan their future programmes. The D.G.T.D. is represented on the Committee also. The details about the Committee are given in reply to recommendation to Sl. No. 13 of Appendix to the PAC's 122nd Report (Fourth Lok Sabha).

In this way, the recommendation of the Committee that emphasis should be given to import substitution and export promotion would be fulfilled.

The recommendation of the Committee have, however, been forwarded to the Ministry of Industrial Development and Internal Trade for necessary action.

A copy of the Resume of the Fourth Five Year Plan programmes (1969-74) of the C.S.I.R. which includes the various steps taken in formulating the proposals is sent herewith (Not printed in the Report).

[Cabinet Secretariat Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III (Pt. II) dated 11-11-1970].

Recommendation

No less important in the Committee's view is the need to ensure that the research efforts in the laboratories centre round new techniques, as a complaint often made against the laboratories is that they are "either re-discovering or re-inventing known processes or products". The Committee have examined this issue in relation to pilot projects in the laboratories later in this Report.

[Sl. No. 15 (Para 2.30) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

At the meeting of the Governing Body of the C.S.I.R. held on 24th July, 1970, it was suggested that a paper on the Report of the Pilot

Plant Committee setting out the issues involved and incorporating the comments of the Directors of the National Laboratories be prepared and circulated for consideration at the next meeting of the CSIR/Governing Body. The suggestion was accepted by the Governing Body.

The Report of the Committee was circulated to Directors of National Laboratories|Institutes and their comments invited.

The BSIR at their meeting held on 30.9.1970 considered the Report of the Committee and the views of the Directors on the Report and decided as under:

"The Board expressed its appreciation to Dr. Kane and the Members of the Committee for the work they had done.

It felt that many of the recommendations of the Committee were useful and that the Executive Councils and Directors should, therefore, carefully consider incorporating the recommendations of the Committee into the programmes of the laboratories. In doing so, the comments of the Directors on the Report should also be kept in view."

Reply to recommendation at Sl. No. 16 of Appendix to the Report may also kindly be referred to in this connection.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III Pt. II dated 4-12-1970].

Recommendation

Another point that has come to the Committee's notice is the overlap in research between laboratories. The data given earlier in this Report would show that is as many as eight disciplines, there were two, three and in one case even eight laboratories whose work overlapped. A certain amount of overlap is perhaps inevitable in any research effort, but the matter calls for constant and continuous review.

[Sl. No. 16 (Para 2.31) of Appendix to the 122nd Report--(Fourth Lok Sabha)].

Action taken

The question of overlapping of research has already been engaging the attention of CSIR and its laboratories. The Board of Scientific and Industrial Research at their meeting held on 23rd July, 1970 inter-alia recommended that:—

"The Board stressed the need to avoid duplication of effort especially where large investments were involved and this might be looked into."

The Governing Body accepted the above recommendation of the Board at the meeting held on 24th July, 1970.

The CSIR laboratories are of a specialised nature with established capabilities. In the expanding frontiers of science and technology, some overlapping interdisciplinary research is inevitable; however the approaches, goals and end uses may be different. The CSIR had set up working groups and sub-groups to prepare the fourth plan proposals and to recommend priority projects and they have kept cases of duplication in view and made specific recommendations to discontinue or review a number of projects for reasons such as their obsolescence, irrelevance to country's requirements and duplication.

Letters were also addressed to CSIR laboratories regarding BSIR/Governing Body decisions. The replies from the Laboratories show that the goals and status of C.S.I.R. programmes are different and they are also aware of the nature and extent of work in other laboratories.

The matter was last discussed at great length at the meeting of Technical Committee of the BSIR, held on 28th September, 1970. The D.G.S.I.R. while summing up the discussions stated that "the word duplication had been stressed so much that one would be scared to take up any project for fear of duplication. As regards scientific research there may be dozens of laboratories working on different aspects of an area or activity. Some overlapping was inevitable. It should be beneficial and welcome in basic research but where major investments of personnel and equipment were involved, these should be subject to scrutiny before committing resources and that in effect was the object of planning."

The B.S.I.R. also discussed this matter on 30th September, 1970. The President, CSIR said that—

"There did appear to be considerable duplication of research work, both within the CSIR and between it and the other R & D Agencies. Cases, involving such duplication should be immediately identified and discontinued forthwith."

The Proceedings of the Technical Committee of the BSIR and of the BSIR held on 28th September, 1970 and 30th September, 1970 respectively will be sent to all the Directors of the National Laboratories/Institutes in due course.

However, the CSIR Laboratories are being informed about the recommendation of the PAC relating to avoiding duplication vide

CSIR letter No. 3/3/69-PU. Vol. III Pt. II dated 22nd October, 1970
(Copy enclosed).

[Cabinet Secretariat, Department of Scientific & Industrial Research
(CSIR 3/3/69-PU. Vol. III Pt. II dated 4th December, 1970].

**COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH
RAFI MARG, NEW DELHI-1.**

No. 3/3/69-PU. Vol. III Pt. II, dated 22nd October, 1970

From: The Secretary,

Council of Scientific & Industrial Research.

To

The Heads of
all the National Laboratories/Institutes.

**SUBJECT:—122nd Report of the PAC (1969-70)—4th Lok Sabha—
recommendations relating to Research programmes of
CSIR.**

Sir,

I am directed to forward herewith the following recommendations made in the 122nd Report of the P.A.C. (1969-70)—Fourth Lok Sabha, on the above subject for future guidance:

Sl. No. of Appendix of the Report	Para No.	Recommendations
1	2	3
15	2.30	No less important in the Committee's view the need to ensure that the research efforts in the laboratories centre round new techniques as a complaint often made against the laboratories is that they are "either re-discovering or re-inventing known processes or products." The Committee have examined this issue in relation to pilot projects in the laboratories later in this Report.
16	2.31	Another point that has come to the Committee's notice is the overlap in research between laboratories. The data given earlier in this Report would show that in as many as eight disciplines, there were two, three and in one case even eight laboratories whose work overlapped. A certain amount of overlap is perhaps inevitable in any research effort, but the matter calls for constant and continuous review.

As regards research work on eight disciplines which the Committee have referred at Sl. No. 16 above being carried out in more than one national laboratory, this item included in the Agenda &

Proceedings of the 55th meeting of the Governing Body held in May, 1969, was duly forwarded to all the National Laboratories, Institutes of the CSIR on 16th September, 1969 for their information and guidance.

Yours faithfully,

(I. N. MATHUR)
Deputy Secretary.

Recommendation

The Committee have in paragraph 1.11 of their Seventy-Fifth Report (Fourth Lok Sabha) already emphasised the need for ensuring that foreign collaborations are not approved in fields where indigenous know-how has developed adequately. The Committee note that Government have streamlined the arrangements in this regard to ensure that if a know-how suitable for commercial exploitation has been developed in the C.S.I.R. laboratories, foreign collaboration is not permitted.

[Sl. No. 17 (Para 3.9) of Appendix to the 122nd Report (Fourth Lok Sabha)].

Action Taken

The recommendation of the P.A.C. has been noted.

[Ministry of Industrial Development & Internal Trade (Department of Industrial Development) O.M. No. FC-1/71/70 dated 6th November, 1970].

Recommendation

The Committee have in paragraph 1.11 of their Seventy-Fifth Report (Fourth Lok Sabha) already emphasised the need for ensuring that foreign collaborations are not approved in fields where indigenous know-how has developed adequately. The Committee note that Government have streamlined the arrangements in this regard to ensure that if a know-how suitable for commercial exploitation has been developed in the C.S.I.R. laboratories, foreign collaboration is not permitted.

[Sl. No. 17 (Para 3.9) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

The observation of the Committee has been brought to the notice of Ministry of Industrial Development and Internal Trade (Department of Industrial Development).

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 33/69-PU. Vol. III Pt. II dated 23rd October, 1970].

Recommendation

The Committee would like to point out that the CSIR on its part has an obligation to establish the commercial viability of processes developed in its laboratories, while urging its cause before the Foreign Investment Board. Later in this Report, the Committee have referred to the experience of Bharat Electronics which undertook the production of ceramic capacitors based on know-how developed in National Physical Laboratory but found the process "so unworkable and uneconomic" that it was obliged belatedly to seek foreign collaboration. The Mudaliar Committee on foreign collaboration also referred to complaints that "CSIR has not been taking a broad view regarding the availability of indigenous know-how" and had pressed "cases where the indigenous know-how is restricted to the laboratory stage or its commercial possibilities had not been fully proved." It is, therefore, essential that processes developed in the laboratories are adequately proved with the help of competent design and consultancy services available.

[Sl. No. 18 (Para 3.10) of the Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action Taken

The recommendation of the P.A.C. has been noted

[Ministry of Industrial Development & Internal Trade (Department of Industrial Development) O.M. No. FC-1/71/70 dated 6th November, 1970]

Recommendation

The Committee would like to point out that the CSIR on its part has an obligation to establish the commercial viability of processes developed in its laboratories, while urging its cause before the Foreign Investment Board. Later in this Report, the Committee have referred to the experience of Bharat Electronics which undertook the production of ceramic capacitors based on know-how developed in National Physical Laboratory but found the process "unworkable and uneconomic" that it was obliged belatedly to seek foreign collaboration. The Mudaliar Committee on Foreign Collaborations also referred to complaints that "CSIR has not been taking a broad view regarding the availability of indigenous know-how" and had pressed "cases where the indigenous know-how is restricted to the laboratory stage or its commercial possibilities had not

bcen fully proved." It is, therefore, essential that processes developed in the laboratories are adequately proved with the help of competent design and consultancy services available.

[Sl. No. 18 (Para 3.10) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

The recommendation of the Committee that assistance of technical consultants in industry for commercial exploitation of the processes may be obtained is already being followed. In this connection, information furnished in reply to recommendation at Serial No. 30 of Appendix to 122nd Report of the P.A.C. (1969-70)—Fourth Lok Sabha, may kindly be referred to.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69—PU, Vol. III Pt. II. Dated 17th October, 1970].

Recommendation

The fact that a large number of processes have not gone into production indicates that research efforts in the laboratories lack proper direction and are carried on without regard to the needs and requirements of industry. This is a very vital deficiency which calls for immediate correction. A closer tie-up with industry while formulating and implementing research programmes in the laboratories is very clearly indicated.

[Sl. No. 22 (Para 4.18) of Appendix to the 122nd Report--(Fourth Lok Sabha)]

Action Taken

From the beginning, the Council has been endeavouring to establish links with different sectors of industry. Some of the CSIR laboratories have set up industrial liaison and extension units to promote contacts with industry and stimulate interest in processes and products developed through research. The industry also sponsors projects at the National Laboratories/Institutes and utilises the facilities in solving some of their problems.

The efforts of the laboratories are supplemented by the office of the Director-General at New Delhi which maintains contacts with manufacturers' and trade associations. Ministries of Industry,

Defence, Railways, Health, and Food and Agriculture, and also with various user departments of Government. CSIR is also associated with the work of the Industrial Licensing Committee and also the Foreign Agreements Committee of the Ministry of Industrial Development and Company Affairs. The CSIR apprises the Committee of progress achieved in research and development and the availability of indigenous know-how for various commercial processes and products.

The co-operation and advice of industry are obtained in the formulation of research programmes and selection of research projects. Representatives of industries, manufacturers' organisations and user departments of Government are included in Scientific Sub-Committees and Executive Councils of national laboratories, the Board of Scientific and Industrial Research and the Governing Body of the Council. Expert panels with representatives of industries are also constituted to advise individual laboratories on research programmes. The Governing Body of the Council, has, in recent years, urged that research projects in national laboratories should be scrutinized with respect to their utilization aspect and high priority should be given to those which have relevance to defence, food production, export promotion and import substitution.

The national laboratories pay special attention to the communication of research information to industry. Research papers published in scientific journals as such are not very effective as far as industry is concerned. To be effective, information must be selected and suitably processed and adapted to the identified needs of the user, and communicated in a language and idiom which the user understands and appreciates and in a manner which will create an impact and promote action; the object is to 'sell' information. Many of the laboratories publish reports, pamphlets and brochures, containing processed information. Open days and workshops and exhibitions are other means employed for communicating research information. Conferences and symposia are organised to provide an opportunity for scientists in the national laboratories and technical personnel in industry to meet and exchange information and discuss projects and problems.

Information on research projects of CSIR laboratories is communicated to industry by the CSIR headquarters through a quarterly newsletter and also personal contacts. A Technical Information Centre has been set up at Bombay as an experimental measure in collaboration with the Indian Chemical Manufacturers' Association to ensure closer contact between research laboratories and

industry. The centre has undertaken collection of data on chemical industries in the country and publishes a monthly newsletter.

In this way the industry is associated at the time of formulation of programmes in the national laboratories and is kept fully informed of the progress of work there.

Coordinating meetings with groups of industries

The proposals of the CSIR for the fourth five year Plan which are largely application oriented have been prepared after duly consulting the industry. In its efforts to bring the laboratories and industries together, the CSIR arranged discussions in 1968, 1969 and 1970 between representatives of CSIR laboratories, DGTB, Planning Commission, Defence, industry and industrial associations in respect of problems of specific groups of industries viz., scientific instruments, electronics industry, chemical industry, drugs and pharmaceuticals, non-ferrous metals and plastics. The various suggestions were also fed back to the laboratories so that the national laboratories can play an effective role in the development of industry and limited resources available could be gainfully utilized.

Machinery for continuous Thinking:

With a view to providing continuous thinking and guidelines to CSIR laboratories to plan their future programmes, a Committee has been set up by the Vice-President, CSIR, particularly from the point of view of coordinating the work of CSIR laboratories with public sector and private sector industry. The details about the Committee are given in reply to recommendation to Srl. No. 13 of Appendix to the PAC's 122nd Report (Fourth Lok Sabha).

[Cabinet Secretariat, Department of Scientific & Industrial Research
(CSIR) No. 3369-PU, Vol. III, dated 11-11-1970]

Recommendation

The Committee would like to mention two instances to illustrate the position regarding utilization processes developed in the laboratories. In one case, Vitamin 'C', for the production of which a process was worked out in the National Chemical Laboratory between 1959 and 1961, is yet to go into production, though it was licensed for production to Hindustan Antibiotics in 1965. Production is now expected to begin by 1971, but, in the meanwhile, a private company, which entered the field in 1962, with a capacity of 60 tons, is now producing 120 tons. In the other case, ceramic capacitors developed

by National Physical Laboratory was taken up for production by Bharat Electronics. The process was, however, found "unworkable and uneconomic" and, therefore, the undertaking was obliged to obtain know-how from abroad for this purpose.

[Sl. No. 23 (Para 4.19) of Appendix to the 122nd Report (Fourth Lok Sabha)].

Action Taken

The national laboratories seek more and more the assistance of engineering/technical consultants in industry for preparation of project Reports and to establish the commercial viability of a process developed on a laboratory/pilot plant scale as stated in reply to recommendation at Sl. No. 30 of the Report.

The views of the Director, National Chemical Laboratory, Poona relating to the production of Vitamin 'C' at Hindustan Antibiotics Limited, Pimpri and that of Director, National Physical Laboratory, New Delhi relating to the production of 'Ceramic Capacitors' at Bharat Electronics Ltd., are attached *vide* Appendices I and II respectively.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 33 69-PU. Vol. III, Pt. II, dated 8-12-1970].

APPENDIX

REVISED NOTE ON VITAMIN 'C' PROJECT

The facts regarding Vitamin 'C' process development at the National Chemical Laboratory (NCL) and transfer of this technology to the Hindustan Antibiotics Ltd. (HAL) are outlined below in chronological order:—

1. A process for Vitamin 'C' was worked out at the NCL during 1959 to 1961.
2. The HAL Committee consisting of Mr. J. D. Adhia, Mr. B. V. Raman and Drs. D. S. Bhat and N. Narasimhachari recommended in their report to the Managing Director, Shri S. T. Raja, in 1960 that HAL should undertake Vitamin 'C' production on the basis of the NCL process. In this connection the following statement appearing in the 3th Annual Report of HAL (1961-62) is relevant:—

"Sanction of the Government of India for vitmin 'C' project at an estimated cost of Rs. 60 lakhs in Yen currency has been released. Steps have been taken to procure this

plant and equipment, the designing work having been completed. The building designs are also ready for taking up construction work."

Thus HAL was all set in 1962 to go ahead with the establishment of Vitamin 'C' plant based on the NCL know-how.

3. When late Dr. Kasbekar succeeded Mr. Raja as Managing Director, HAL, he desired that an integrated pilot plant for Vitamin 'C' should be set up and operated before HAL finally could decide to accept or reject the NCL process. It was explained to the HAL by the NCL that an 'integrated pilot plant' was not necessary because the production of Vitamin 'C' from glucose involves five distinct chemical reactions and several physical operations which require reaction kettles and equipment of conventional designs, for which pilot plant experiments were unnecessary as these could be designed and fabricated on the basis of existing knowledge. The HAL, however, did not agree to this point of view and NCL reluctantly agreed to the setting up and operating of a pilot plant at HAL.

4. At an inter-ministerial meeting held on 8th January, 1963, under the Chairmanship of Shri S. Ranganathan, Secretary, Ministry of Commerce and Industry, it was agreed that pilot plant runs on Vitamin 'C' should be undertaken at HAL under joint auspices of HAL and NCL. It was decided that the pilot plant work would be regarded as satisfactory when the conversions mentioned in HAL Project Report of 1960 were achieved over an uninterrupted and continuous run of at least 10 days and the decision regarding undertaking large scale production of Vitamin 'C' by HAL would be taken after the above work was completed, and if necessary after the joint report had been examined by a Technical Committee appointed by the Government. It was also stipulated that HAL would complete pilot plant runs and submit a joint report with NCL to Government by January 1964. However as HAL have pointed out in their report on Vitamin 'C' pilot plant project that 'the equipment had to be located from various sources and in some special cases like silver-lined equipment, glass-lined equipment, it had to be fabricated or purchased, the stage-wise trial operations commenced only in December, 1964.

5. After running of the integrated pilot plant on Vitamin 'C' preparation at HAL in 1966, the HAL in their report stated that "the efficiencies indicated in the original report (HAL Report of 1960) have by and large achieved and there is every justification to expect that in properly designed and installed plant, this could be bettered."

It is thus seen that there were no major modifications of the process required due to integrated pilot plant experiments carried out at HAL. Indeed, it only vindicated the stand taken by the NCL that these pilot plant experiments were unnecessary. NCL has thus not been responsible for this delay.

6. It was then decided by HAL to go ahead with the setting up of Vitamin 'C' plant. Ministry of Petroleum and Chemicals, New Delhi intimated HAL on 26th October, 1968 the Presidential approval for setting up 125 TUA plant and for expenditure of Rs. 118 lakhs with foreign exchange of Rs. 62 lakhs for import of equipment and stores.

7. HAL in their latest letter dated 4th May, 1971 to the NCL have intimated following progress on this Project :—

Position as on 30-4-1971.

<i>Plant and machinery</i>	(i) <i>Imported</i> orders placed for 80% of import licences granted.
	(ii) <i>Indigenous</i> orders placed for 60% requirements.
<i>Building</i>	65% completed.
<i>Remarks</i>	Non-availability of M. S. indigenously has affected the fabricational jobs and is expected to delay the completion of the project further. We are endeavouring to get M.S. now imported.

Conclusion: It will be seen from the foregoing note that HAL decided to set up an integrated pilot plant against the advice of NCL. While NCL extended all the help in setting up and running the integrated pilot plant at HAL, this step was unnecessary and delayed the decision for the establishment of Vitamin C plant by five years. Matters relating to setting up of commercial plant by HAL securing industrial licence, ordering equipment, building construction etc. were matters which were beyond the control and purview of the NCL.

9. As regard progress of the private company in expanding its production of Vitamin C from 60 tonnes in 1962 to 120 tonnes in 1970 is on account of the fact that duplication of an existing plant is not as difficult as setting up of a new plant. Secondly the firm had based its plant on foreign technology which had been long established and further it has been having a monopoly of the Indian market ever since its establishment in 1962.

APPENDIX II

NATIONAL PHYSICAL LABORATORY

(Development-cum-Production of Electronic Components Unit)

HILLSIDE ROAD, NEW DELHI-12

TVR|PP|70.

October 22, 1970.

The Secretary,
 Council of Scientific & Industrial Research,
 Rafi Marg,
 New Delhi.

Sir,

Re. 122nd Report of the PAC (1969-70)—recommendations relating to process awaiting commercial exploitation

With reference to your letter No. 3|3|69-PU. Vol. III dated 19|20th October, 1970, we are enclosing a copy of our comments on observations regarding BEL—NPL collaboration for ceramic capacitor production which we sent to the Pilot Plant Committee and also our comments put up at the CSIR meeting held on 30th September, 1970. In addition, we would like to bring forth the following to emphasise that it is not the function of NPL to provide a turnkey job. Our responsibility ends with proving the process and the raw materials that have been used by user acceptability trials and conformance to specifications. The NRDC in communicating its approval of the application for the process states as follows:—

"The process is being offered to you on the basis of laboratory investigations and it is understood that you have satisfied yourself about the process in all respects. We and the Research Institute will, however, render such assistance as we can to help you to expeditiously implement the project."

"Please note that the agreement to be entered into with us will be for the right to utilise the process. National Physical Laboratory, New Delhi would demonstrate the process and would generally advise you on the equipment required. However, if you require detailed information or any further assistance on installation of the equipment, you will have to enter into a separate agreement with the laboratory on terms to be mutually agreed upon."

When we learnt BEL was planning to produce only one tenth of the country's requirements and consequently large amount of imports have to be made, we repeatedly urged BEL through NRDC, to release us from the exclusivity clause. After good deal of negotiations they agreed to do so if the agreement with NRDC is terminated. NPL readily agreed to it in the national interest so that more licensed capacity can be set up for production of ceramic capacitors and thereby stop the drain of foreign exchange for this component. Number of entrepreneurs approached NRDC|NPL for the process. They were not deterred by the fact that BEL had given it up. They are:

1. Matchwel Electricals (I) Limited, Poona (May 1969)
2. Micro Ceramics (P) Limited, Hyderabad (May 1969)
3. Satellite Engineering Limited, Ahmedabad. (May 1969)
4. B. N. Bhaskar & Sons, Faridabad. (Jan. 1970)
5. M. V. G. Menon, New Delhi (Local address) (Jan. 1970)

Each of them have been licensed to produce 20 million capacitors. Messrs Micro Ceramics are already in production. The others are setting up their plants. Even now the number of applicants is quite large and NRDC will have to consider whether additional capacity has to be licensed.

The fact that Micro Ceramics could manufacture and market ceramic capacitors on the knowhow identical to what we gave BEL is proof, if proof is required, that BEL has chosen foreign collaboration for considerations other than viability of NPL knowhow. BEL had stated NPL did not continue to work in the field of ferro-electrics after the process was passed on to them. This is a wrong statement. The then Managing Director of BEL who was also Chairman of the DPEC Sub-Committee of NPL had not approved the proposal for R & D at NPL on this project as BEL will be doing it.

However, NPL did continue in the field and has developed and supplied in limited quantities high voltage ceramic capacitors, ultrasonic transducers, to many defence research establishments, universities, etc. There is a continuing demand for them. Recently the Gramophone Company has approved samples of ceramic pick-up elements developed at NPL and we have been asked to make and supply two lakh pieces.

Yours faithfully,
Sd/-
(T. V. RAMAMURTI)
Scientist Incharge, DPEC Unit.

Highlights of the NPL-BEL collaborative agreement on Ceramic Capacitor production

1. NPL developed the process and ran a pilot plant for production for full two years upto 1959. Total production was about 6 million.

2. The capacitors were tried for user acceptability by radio manufacturers and other users and were approved.

It was BEL who evinced interest in the process, Their Financial Controller and Cost Accounts Officer visited NPL to study the costing of the Pilot Plant. After fully satisfying themselves about the commercial viability of the process, BEL entered into an agreement with NRDC.

4. BEL insisted on having an exclusive licence, which was agreed to very reluctantly.

5. For over one year the pilot plant at NPL was run by BEL whose officers and Cost Accountant continued to be here. All information relating to raw materials, processing, etc. was supplied.

6. After the process was completely transferred to Bangalore, three of our experienced officers were also absorbed by BEL so that production could be organised.

7. From 1960-61 BEL produced 17.5 million capacitors and sold 15.6 millions for Rs. 32.5 lakhs. From an initial production of 4.17 lakhs in 1960 they reached a production of 35 lakhs in 1968. The continuous increase in production is a proof that the process was working satisfactorily.

8. In 1968 BEL chose to collaborate with a foreign firm. NPL capacitors had been tested and approved by the same firm with whom BEL chose to collaborate.

9. After termination of the agreement with BEL a large number of entrepreneurs have approached NPL for licences and five parties have already been licensed. One of them is already in production and marketing its product. The others are expected to go into production shortly.

10. It is quite clear from the above BEL chose to enter into collaboration agreement with CSF for reasons other than technical. With a little effort on their part—they have a well organised methods and

engineering group—they could have streamlined the process to the degree they wanted.

Comments on the letter from Bharat Electronics Limited to the Pilot Plant Committee

(a) The letter received from BEL in reply probably to the query by the Pilot Plant Committee was not passed on to NPL at any time for their reply.

(b) It is to be emphasised that the full-fledged transfer of knowhow to BEL on ceramic capacitors was the first of its kind undertaken by the NPL and so in our process details which we passed on to BEL there may have been some lacunae.

(c) In the extensive correspondence after the process was formally accepted by BEL, in regard to machinery, equipment, raw material sources, raw material specifications and all other details were furnished. The correspondence commenced from 4th January 1961.

(d) In regard to the point made out in BEL's letter, of insufficient information regarding raw materials, their specifications, etc they have all been fully furnished in this extensive correspondence.

The choice of equipment was also made jointly and it is not only NPL that is responsible. It was pointed out right in the beginning that NPL Pilot Plant operation has been passed on indigenous equipment and a production of 10,000 pieces per day had been achieved.

BEL's representatives were posted to NPL Pilot Plant for a whole year and they underwent detailed training. The costing of the process was also done by a Cost Accountant deputed by BEL.

In the first stage of BEL's taking over, raw materials were supplied from NPL and semi-finished goods were also provided for BEL to finish them. A complete list was also furnished and orders were executed by BEL using the semi-finished material sent from NPL. During this time the Cost Accountant was in full control of the entire process and so all relevant data for running a manufacturing plant commercially was collected not only by us but by their own staff. The products were sold to users and this amply proves that the materials and process are technically acceptable.

NPL during the final stage of the transfer of process sent three of its experienced staff who headed three sections, viz., the material

preparation, the pelleting and sintering process and final testing of the finished product.

In June, 1961 we sent one of our officers for training the staff recruited by BEL for commencing production. In the letter dated 24th November, 1962 from the Head of the Ceramic Capacitors Department, he states:

"We have been able to maintain production of about 6,000 nos. per day besides reprocessing old condensers."

"The design for automatic stacking has been made for Exacta-I by Shri Ramakrishna and detail parts drawing is under making. The bakelite dipping mechanism design which you had seen is now fabricated and under use working satisfactorily. The improvements on printing are going on. The clips forming tool design is completed and the same has to be now fabricated. In short we are getting over the initial difficulties as well as making improvements fairly satisfactorily."

This was as a result of a visit which the officer Incharge of the DPEC Unit made to BEL. He spent one month in studying the various teething troubles that BEL were encountering and made suggestions for improvement which were immediately put to test. A detailed report was prepared which was submitted to the Board of Directors of BEL. This was on July 2, 1962. In this report a strong recommendation was made that they should set up a research group so that they will be in a position to undertake improvements on their own. During discussions which the Officer Incharge had with the Managing Director (Mr. Baliga) and the then Deputy General Manager Mr. Subramaniam who was Incharge of the Ceramic Capacitors Unit, they did not welcome the suggestion that NPL should continue further investigations on improvements of ceramic capacitors. To quote from the comments that accompanied Mr. Ramamurti's letter dated 9th March, 1964 to Mr. Baliga:

"You may remember that one of the projects which I have included for the DPEC Uunit is further work on the High K bodies and for high voltage purposes also and this question was discussed on 30th August, 1963 with you and Shri Subramaniam. You may also remember that you felt since you are creating a new development unit attached to the ceramic capacitors plant, they will be undertaking the development work. However, we propose to con-

tinue to work in the field in our own small way within our limited means and facilities here."

They wanted that a proposal should be drawn up for setting up their own R&D unit and this was done. From the summary of the conclusions and recommendations of the report it may be pertinent to quote some of the suggestions:

"The ceramic capacitor plant has reached an average production of 5,000 capacitors per day for the past few weeks with only 40 operators as against the full complement of 59".

"There are still many who are new to the job as they have been recently recruited and when they gather experience the production will increase."

"An estimate of costs, if production is doubled with or without mechanisation and with a fully automated plant are also presented."

"It is more than likely the efficiency of the production of discs will increase as production gets stabilised, operators get the experience and the full complement of staff is available."

"Control procedure at each stage of production have been introduced and day to day studies are being made which will help in introducing proper measures to economise."

"The Assistant Engineer (Mechanical) of the Section has a flair for designing such fixtures and has already introduced many simple gadgets and jigs."

"While the offer of assistance from Deputy General Manager is most welcome and should be fully availed of, it is still necessary to provide a mechanical section in the Development Laboratory proposed to be set up. This will considerably hasten the introduction of mechanical aids to streamline production."

"It is absolutely essential to provide for a Development laboratory where many problems can be studied which can lead to economy, a better quality product and new designs."

"At present the average selling price is Rs. 18.5 per 100 while the production costs, as at present calculated is Rs. 16.69 which includes all plant charges."

"It is my considered view that development and increase in production in stages, will be the best course and will keep in step with the slow tempo of increase in demands of the radio industry."

"It is my considered opinion that, in our economy, where the demands are small and varied, semi-automatisation is the most sensible course to adopt which will give flexibility of production as well as maximum relief in unnecessary manual handling of the components."

Though BEL did not want NPL to continue work of ferro-electric ceramics it may be interesting to note that NPL has been carrying on, in a modest way, development of PZT ceramics which are used in ultrasonic transducers, gramophone pick-ups and in sonic equipment used for the defence services. In fact, it has been supplying steadily small orders required by the defence. Recently, Gramophone Company of India has approved our PZT elements and have asked us to quote for the supply of two lakh pieces of these. The process for PZT ceramics and ceramic capacitors is identical.

After BEL released NPL from the exclusivity clause, many have applied for the process out of which four have been licensed. Of these Messrs Micro Ceramics (P) Ltd., Hyderabad, is already in production using the NPL knowhow, on information similar to what we had supplied to BEL. They have had no problems. Their production plan is one lakh of capacitors per month. The samples have been found to be quite satisfactory.

BEL have not bought any additional equipment except a conveyor system and a few ancillaries. None of the equipment which they had originally bought on the recommendations of NPL have been rendered obsolete or unserviceable and they are now being used for production with foreign knowhow. Finally, we quote the recommendations of C.S.F. with whom they have now collaborated, on the quality of the ceramic capacitors developed at NPL:

".....the dielectric characteristics are good and comparable to the commercial types available on the European and American markets."

"The insulation resistance at elevated temperatures (75°C) are very good, except for the B.S. _{n7}, which is still acceptable."

by the BEL Cost Accountant, certified by NPL officers and sent to BEL every month.

(6) A detailed flow chart, production schedule charts, norms for quality control and testing, and material analysis at various stages were supplied alongwith the names of manufacturers of raw materials. In fact raw materials were sent to BEL from NPL stocks to let them commence production.

(7) During this period considerable amount of correspondence ensued between BEL and NPL in the choice of equipment to be imported. BEL received their machinery and equipment in two stages. As a first step the ceramic capacitors were processed half-way, i.e., tablets were made, sintered and silvered and then sent to BEL who finished them into full capacitors and sold them.

(8) In order to facilitate the smooth running of the production unit at BEL, *three of our most experienced officers* who have been incharge of the three major sections of the production process, were absorbed by BEL to help the setting up of production.

(9) From 1960 to 1968 the total production of capacitors was 17.7 millions of which 15.6 millions were sold for a value of 32.5 lakhs of rupees. The production increased from 4.17 lakhs in 1960-61 to 35 lakhs in 1968. The attached statement gives the break-up of production yearwise by BEL for over 8 years. (Annexure I).

(10) The fact that BEL continued to increase its production of ceramic capacitors which were readily absorbed in the market and accepted by the industry, proves if proof is needed, that the process NPL has developed using indigenous raw materials has worked satisfactorily and is commercially viable.

(11) Charges have been levelled against NPL that they have not provided the know-how for an automatic plant.

(12) NPL or any other CSIR laboratory for that matter, has never claimed that they can do the design and engineering of a complete production unit. The attempt is only to develop a process in a pilot plant to prove the commercial viability of the process and its economics. There are firms of consulting engineering who undertake the scaling up.

(13) In 1968 BEL chose to seek foreign collaboration for production of ceramic capacitors.

(14) They have not bought any additional equipment except a conveyor system and a few ancillaries. None of the equipment which they had originally bought on the recommendations of NPL have been rendered obsolete or unserviceable and they are now being used for production with foreign know-how. Finally, we quote the recommendations of C.S.F. with whom they have now collaborated on the quality of the ceramic capacitors developed at NPL.

“.....the dielectric characteristics are good and comparable to the commercial types available on the European and American markets”.

“The insulation resistance at elevated temperature (75 C) are very good, except for the BS, which is still acceptable.”

“It seems obvious from this very detailed study that a large amount of research work has been performed and a good knowledge of the local problem is achieved”.

(The report is dated November, 1956 and was signed by Mr. C. Schlumberger).

This was the considered view of CSF and samples were submitted independently by BEL from a random choice of capacitors that were being produced in NPL Pilot Plant at that time.

(15) It may also be pertinent to point out that NPL has licensed 15 parties for production of various other components such as ceramic rods for resistors (2 parties), Soft ferrites (6 parties), Hard Ferrites (4 parties), etc. Not one of those firms who have established production and are supplying regularly to industry for the past few years, have ever felt the need for seeking foreign collaboration because of inadequacy of the NPL know-how. They have done the scaling up on their own.

As an outstanding example, the process details were supplied by NPL on Soft ferrites to two firms based on a Pilot run of only two tonnes per month for about a year. The firms have established production of 150 tonnes on their own. This only proves that given sufficient initiative and interest it is possible to commercialise the process that NPL has developed. If all the other licensees can do it the fault does not lie with the 'know-how developed by NPL.

Far from being discouraged by BEL's decision to seek foreign collaboration, NPL has been approached by many State government

industrial corporations and more than half a dozen parties for the know-how. Three parties have been licensed already.

In regard to the remark about futility of "redevelopment" NPL did not do the development of the process from imported materials but used all indigenous materials. This fact has been appreciated by no less a firm than Messrs Philips who are in correspondence with us and are using indigenous materials of the same specifications as the ones we used. In fact they even sought our assistance for a substitute for imported Bentonite in which we have been able to render assistance.

The fact that countries like Yugoslavia have shown an interest to import the composition for further processing is a direct rebuttal of the remark about futility of "re-development".

Annexure (II) is a copy of the test report on NPL ceramic capacitors by a well known firm of manufacturers in the U.K.

ANNEXURE I

Production of Ceramic Capacitors at BEL

Year	Production (Nos.)	Sale	
		Quantity	Value (Rs.)
1960-61	4,17,778	4,34,902	46,141
1961-62	9,73,655	4,44,995	1,14,263
1962-63	14,52,102	9,55,594	1,97,366
1963-64	22,86,416	19,97,643	4,66,275
1964-65	24,52,577	21,59,152	4,57,032
1965-66	30,26,605	30,04,000	6,33,415.28
1966-67	35,41,821	32,84,270	6,65,647.58
1967-68	33,00,000	33,00,000	6,70,334.80
	1,74,50,954	1,55,80,356	32,50,474.66

ANNEXURE II

Copy of letter No. RKS/MD dated 20th June, VTEG from Mr. R. K. Spencer, Assistant Chief Engineer, E. K. Cole Limited, Essex, U.K., to Mr. T. V. Ramamurti, N.P.L.

Dear Mr. Ramamurti,

I am glad to say we have concluded the tests on the sample Silvered Ceramic Condensers passed to me during my recent visit to Delhi. I regret that the tests have taken so long, but you will realise that a considerable amount of work has been done.

I am delighted to find that these condensers are so good, and congratulate you and Mr. Ganapathy on the most excellent work that has been done.

The very best English manufacturer referred to in the report is, of course, Erie, but I have not embodied this name in the report for obvious reasons, and would be glad if you would keep this as confidential.

I understand that the National Ekco Radio and Engineering Company of Bombay are interested in your condensers, and I am told by their representative that you are now covering the ceramic discs with a phenolic material. If this is correct I would be glad of another sampling, so that I can give approval on the phenolic covering for our Company in Bombay. A similar range of samples to those already tested would be suitable.

With my very kindest regards,

:

:

:

Yours sincerely,

Sd/ K. K. Spencer

E. K. COLE'S REPORT

Conclusions

In the following conclusions, the results of these tests have been compared with figures obtained from one particular manufacturer in Great Britain who manufactures the highest grade of condensers and the average condenser manufacturers of first grade condensers.

(1) Stability at Room Temperature

The stability of the National Physical Laboratory Condensers is as good as the best of those manufactured in Great Britain and in a number of cases, is better.

(2) Heat Cycle

The National Physical Laboratory High K condensers are not quite as good as those made in this country. The High stability types are comparable with the average manufactured in Great Britain.

(3) Percentage difference between Start and End of Heat Run (Cyclic Return)

The National Physical Laboratory High K Condensers are comparable with the very best British makes but the National Physical Laboratory High Stability type are comparable with the average British Condensers.

(4) Humidity

The National Physical Laboratory Condensers are comparable with the very best manufactured in Great Britain.

(5) Shunt Loss

Shunt loss figures obtained on National Physical Laboratory condensers were very slightly lower (worse) than condensers manufactured in Great Britain.

(6) Power Factor

The Power factor at 1 Kc/s taken on the National Physical Laboratory High K types, is slightly lower (better) than the British counterpart, and the National Physical Laboratory High Stability Types at 1 MC/s compare with the very best.

Recommendation

In view of the very poor record of utilisation of processes developed in the laboratories, the Committee would like to suggest that the Board of Scientific and Industrial Research should in future carry out as a regular feature systematic review of the performance of each of the laboratories from the point of view of their contribution to industrial production. The review should initially cover laboratories where the record of utilisation has been particularly poor; the causes for this phenomenon should be isolated and appropriate correctives applied. To facilitate a standing review, a standardised form of reporting by the laboratories should be adopted and this should provide for each laboratory reporting on the number of processes under development, the period over which development has taken place, the number developed and leased and the production established in the commercial sector on the basis of those processes and the number developed but awaiting release. The collection of data on these lines and its systematic processing would help the C.S.I.R. to understand how far

research efforts in the laboratories have relevance to the needs of industry.

[Sl. No. 24 (Para 4.20) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The observations/recommendations of the Public Accounts Committee have been taken note of and the Directors/Heads of the National Laboratories have been advised to make an annual review of the processes/know-how developed in a standardised form as recommended by the Committee and place the matter before the Executive Councils of the Laboratories concerned. Whenever such a review shows that the performance of any of the laboratory from the point of view of their contribution to industrial production is not up to the mark, the matter will be brought to the notice of the B.S.I.R.

A copy of letter No 3369-PU, Vol. III (Pt. II) dated 5th December, 1970 is attached.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU, Vol. III/Pt. II dated 3-12-1970]

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

No. 3/3/69-PU, Vol. III, Pt. II

Rafi Marg.

New Delhi-1, dated 5th December, 70

From

The Secretary
Council of Scientific & Industrial Research

To

The Heads of the National Laboratories/Institutes.

SUBJECT:—122nd Report of the PAC (1969-70)—Fourth Lok Sabha—*observation recommendation relating to the utilisation of the processes developed in the National Laboratories/Institutes.*

Sir,

I am directed to reproduce below the observation/recommendation of the PAC made in their 122nd Report (1969-70)—Fourth Lok Sabha on the above subject:—

“In view of the very poor record of utilisation of processes developed in the laboratories, the Committee would like to

suggest that the Board of Scientific and Industrial Research should in future carry out as a regular feature systematic review of the performance of each of the laboratories from the point of view of their contribution to industrial production. The review should initially cover laboratories where the record of utilisation has been particularly poor: the causes for this phenomenon should be isolated and appropriate correctives applied. To facilitate a standing review, a standardised form of reporting by the laboratories should be adopted and this should provide for each laboratory reporting on the number of processes under development, the period over which development has taken place, the number developed and leased and the production established in the commercial sector on the basis of those processes and the number developed but awaiting release. The collection of data on these lines and its systematic processing would help the CSIR to understand how far research efforts in the laboratories have relevance to the needs of industry."

It is requested that a review of the process/know-how developed by your laboratory/institute and their utilisation by industry may please be placed before the meeting of the Executive Council once a year as per proforma enclosed. You are also requested kindly to bring the observation/recommendation of the PAC to the notice of the Chairman and Members of the Executive Council for information.

Yours faithfully,

(L. Ramanathan),
Under Secretary.

NAME OF THE LABORATORY—

Statement showing the process know-how developed under development for the year—

Sl. No.	Name of process known	Whether fully developed or under development	Period	Whether the process know-how released through NRDG or released directly to Parties.	Name of Party to whom the process know-how has been released.	Year of release	Year of commencement of production.	Reasons where the process' know-how has not yet been released	
1	2	3	4	5	6	7	8	9	10

Recommendation

In the Committee's view, one reason for the unsatisfactory utilisation of processes developed in the Council of Scientific & Industrial Research laboratories in the inadequacy of the National Research Development Corporation, the agency through which the processes are released. At the last meeting of the governing body, the Vice-President of C.S.I.R. expressed the view that "there is considerable dissatisfaction" that the present procedure for release of processes "are involved and take considerable time" and that "the working of this organisation needs looking into".

[Sl. No. 25 (Para 4.39) of Appendix to 122nd Report—(Fourth Lok Sabha)].

Action Taken

The National Research Development Corporation of India submits that there are several stages before a laboratory process can be satisfactorily utilised on a commercial scale. Firstly, a process discovered by a laboratory has to be evaluated by an outside agency, either the National Research Development Corporation or the Office of the D.G., C.S.I.R. Secondly, the process approved after evaluation will have to be tested either in a pilot plant or a proto type or by up-scaling, etc. All these processes may not be necessary in each case, but a proper evaluation is essential. N.R.D.C. has not had the needed facilities for evaluation. The new Board of Directors of N.R.D.C. has examined the matter and is trying to evolve a suitable evaluation machinery.

[Ministry of Education and Youth Services O.M. No. G 25015/12/70-
Accounts, II dated 21-11-1970].

Recommendation

The Committee would also like the Corporation to evolve some rational criteria for fixation of royalties on processes released to industries. In a very profitable line of production like Television receivers, for instance, the recurring royalty has been just 2 per cent of ex-factory sales. This return must be considered meagre when it is weighed against royalty rate of 5 per cent to 10 per cent allowed to foreign parties from whom know-how is generally acquired in the country on collaboration basis. The matter, in the Committee's opinion, needs re-examination.

[Sl. No. 27 (Para 4.41) of Appendix to 122nd Report—(Fourth Lok Sabha)].

Action Taken

In fixing the royalties on processes released to industries N.R.D.C. is guided by the advice of the laboratories and the best available offers. In view of the general reluctance on the part of Indian entrepreneurs to adopt indigenous technology and their pronounced preference for imported ones, N.R.D.C. is unable to obtain advantageous terms. However, every efforts will be made to persuade acceptance of indigenous technology by continuous after-sale-service of the processes.

One important reason for higher royalties paid in the case of foreign collaboration is that the foreign collaboration agreement contain performance guarantees. Neither our laboratories nor N.R.D.C. are now in a position to provide this guarantee which explains the lower royalties paid to N.R.D.C. than to foreign collaborators. N.R.D.C. will address itself to the question of filling up the lacunae, in consultation with the C.S.I.R. D.G., T.D. etc.

[Ministry of Education and Youth Services O.M. No. G 25015/12/76-
Accounts, II dated 21-11-1976]

Recommendation

Elsewhere in this Report, the Committee have drawn attention to the lack of cost consciousness in the CSIR laboratories which undertake pilot projects. The Committee have in paragraph 1.7 of their Seventy-Fifth Report (Fourth Lok Sabha) stressed the need for introduction of a general pattern of cost analysis in the laboratories with a view to ascertaining the expenditure incurred on processes meant for commercial exploitation. The Committee note that while this has been generally "welcomed", action to implement it is yet to be taken. The Committee desire that this should be done forthwith.

[Sl. No. 28 (Para 4.42) of Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action Taken

The recommendation of the PAC contained in its 75th Report (1968-69)—Fourth Lok Sabha, was circulated to all the National Laboratories/Institutes of the CSIR.

Most of the National Laboratories/Institutes have agreed to the need for cost analysis of processes developed by them for commercial exploitation in order to have an accurate idea of the amount of the financial and labour in-put for the development of a particular process. The Ministry of Finance, Department of Expenditure have

intimated that a Cost Accounts Officer would be visiting some of the National Laboratories/Institutes during the period from 16th to 25th September, 1970 to evolve a suitable method for introducing methods of cost analysis.

[Cabinet Secretariat, Department of Scientific and Industrial search (C.S.I.R.) No. 3|3|69-PU. Vol. III|Pt. II dated 22]

The Committee would also like to reiterate their recommendation in paragraph 1.20 of their Seventy-Fifth Report that processes not developed within a reasonable time should be resumed and framed out to other reliable parties.

[Sl. No. 29 (Para No. 4.43) of Appendix to 122nd Report—(Fourth Lok Sabha)].

Action Taken

The Committee's recommendation that the process not developed within a reasonable time should be resumed and framed out to other reliable parties is under implementation. Whenever a process is not exploited within a reasonable time, the licence is being cancelled.

- As a general rule, N.R.D.C. is no longer giving exclusive licences there is no more danger of the processes not being available to any other worthwhile promising entrepreneur. N.R.D.C. also makes a careful scrutiny of the technological and financial competence of the party before giving a licence.

[Ministry of Education and Youth Services O.M. No. G 25015/12/70-Accounts, II dated 21-11-1970].

Recommendation

The Committee feel that one reason for the gap between industrial research carried out in the C.S.I.R. Laboratories and its utilisation is that laboratories lack experience in scaling-up operation essential for establishing the commercial viability of process proved on a laboratory scale. If this gap is to be bridged, it is essential that the laboratories should take the help of competent technical consultants in industry before embarking on developments of processes beyond the laboratory stage.

[Sl. No. 30 (Para 4.60) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

The recommendation of the Committee has been circulated to the National Laboratories/Institutes vide CSIR letter No. 3/3/69-PU Vol. III dated 24th June, 1970 (Appendix-I).

The recommendation of the committee is already being followed in practice by the National Laboratories/Institutes. In addition to the information already incorporated in the 122nd Report of the PAC (1969-70) - Fourth Lok Sabha at Para No. 4.45 (Page 50-51), the cases of a few more projects on which commercial feasibility Reports have been prepared by outside consultancy service Bureaus are given below:

Project	Name of the firm
(1) Potassium chloride and epsom salt from mixed salt at Central Salt and Marine Chemicals Research Institute, Bhavnagar.	(1) M/s. Industrial Consulting Bureau (P Ltd., Bombay.
(2) Potassium Schoenite from mixed salt at Central Salt and Marine Chemicals Research Institute, Bhavnagar.	(2) M/s. Industrial Consulting Bureau (P Ltd., Bombay.
(3) Process on Oleo Flotation at Central Fuel Research Institute, Jealgora.	(3) M/s. McNally-Bird Engineering Co. Ltd., P. O. Kumardhubi, District Dhanbad.
(4) Process on production of cyanopyridines, benzoic acid and benzaldehyde at Central Fuel Research Institute, Jealgora.	(4) M/s. Chemical & Metallurgical Design & Co. (P) Ltd., New Delhi.

(5) An agreement with M/s. R. L. Dalal & Co. Bombay for development contract for exploitation of the process on production of anthroquinone from anthracene developed at Central Fuel Research Institute is under consideration.

(6) An agreement has also been entered into by the Central Salt & Marine Chemicals Research Institute, Bhavnagar, with the Industrial Agricultural and Engineering Company, Bombay or collaboration in establishment of electrodialysis plants using techniques developed in the Institute.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 33 69-PU Vol. III Pt. II, dated 8-10-1970]

Recommendation

The Committee are of the view that applied industrial research can thrive and its results put to fruitful use only if the industry has

stake in the research work. From this point of view it is essential that research ventures should be organised in collaboration with industry. The data available suggests that in U.K. in pursuance of the deliberate policy of Government the number of cooperative research associations has increased. From 20 such associations in 1939, the number increased to 50 by 1960. A start in this regard has been made in India with the organisation of a number of Cooperative Research Associations, in league with industry. The pace should be accelerated.

[Sl. No. 31 (Para 4.50) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

The recommendation of the Committee has been noted.

The above replies have been vetted by Audit (A.G.C.R.) vide their D.O. letter No. RR25-4 70-71 374 dated 17th October, 1970 (copy enclosed—Appendix).

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 33 69-PU, Vol. III Pt. II, dated 27-10-1970].

APPENDIX

D.S. Bist,

Asst Accountant General.

D.O. No. RR25-4 70-71 374

OFFICE OF THE
ACCOUNTANT GENERAL, CENTRAL REVENUES
INDRAPRASTHA ESTATE

New Delhi-1, the 17th October, 1970.

Dear Shri Ramanathan,

Please refer to your D.O. letter No. 33 69-PU, Vol. III, Pt. II dated 15-9-70 forwarding draft 'Notes' in pursuance of the Public Accounts Committee's recommendations contained in Serial Nos. 17, 28 and 31 of the Appendix to their 122nd Report (4th Lok Sabha).

2. We have no comments to offer on the draft 'Notes'.
3. A copy of each of the draft 'Notes' and the Council's supporting papers are returned herewith.

Your's sincerely,
Sd/-
(D. S. BIST)

Shri L. Ramanathan,
 Under Secretary,
 Council of Scientific and Industrial
 Research,
 New Delhi.
 TRUE COPY:
 ATTESTED:

(I. N. MATHUR)

Deputy Secretary,
 Council of Scientific and Industrial
 Research,
 Rafi Marg, New Delhi.

Recommendation

In the Committee's opinion, the performance of 'Pilot plants' set up in the C.S.I.R. laboratories has been most unimpressive. By 1968 there were over 155 such pilot plants in existence or under construction and the investment in them amounted to over Rs. 9.6. crores. A Committee set up by the C.S.I.R. (Kane Committee), which reviewed the working of these Plants found that very "few of the processes" developed through pilot plants had been commercially exploited and that the revenues earned by the laboratories "have been disproportionately small" in relation to the expenditure and effort went into these ventures.

[Sl. No. 32 (Para 3.5) of Appendix to the 122nd Report (Fourth Lok Sabha)]

Action Taken

The observations of the Committee have been taken note of.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 33 69-PU. Vol III Pt. II. dated 4-12-1970.]

Recommendation

The data given to the Committee shows that over 70 per cent of the expenditure on pilot plants was incurred by five laboratories. Two of these laboratories, the Regional Research Laboratory, Hyderabad and the National Metallurgical Laboratory, Jamshedpur, alone spent

over Rs. 2 crores on two pilot plants—one on a coal gasification project and the other on a low-shaft furnace plant. In the first case, the gas produced has not found any use nor its quality been tested, while in the other, as reported by the Kane Committee, "not a single low shaft furnace has been established in the country for production of pig iron with know-how obtained from this plant." It is interesting to note that these pilot plants have been in existence for eight to ten years.

[Sl. No. 33 (Para 5.6) of Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action Taken

The observations of the Committee have been taken note of.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III. Pt. II, dated 4-12-1970].

Recommendation

A Working Group appointed by the C.S.I.R. to finalise the Fourth Plan proposals found that 21 projects in the laboratories were serving no useful purpose and suggested that they should be discontinued. The investment in these projects has not been intimated to the Committee by the C.S.I.R. which, incidentally is yet to take a final decision on these projects (though the Working Group reported as early as December, 1968). This, in the Committee's view suggests that projects which involve substantial investments are not being processed with due care.

[Sl. No. 34 (Para 5.7) of Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action Taken

The *resume of the Fourth Five Year Plan programme (1969—74) of the C.S.I.R. were considered by the Technical Committee of the B.S.I.R. and the B.S.I.R. at the meetings held on 28-9-1970 and 30-9-1970 respectively.

Out of the 21 projects recommended to be discontinued or proposed not to be taken up during the Fourth Plan period, information of 18 projects is given laboratory-wise in Appendix-VI of the Resume (Vide pp. 57—117).

*Copy of the Resume already sent to the P.A.C. in reply to recommendation at Sl. No. 14 of the Report.

The following 3 Projects have not been included by the Laboratories concerned in their Fourth Five Year Plan programmes:

- (i) Starting of a department of pathology at Indian Institute of Experimental Medicine, Calcutta.
- (ii) Closing down of the Regional Centre of Central Public Health Engineering Research Institute, Nagpur at Bhopal and Poona.
- (iii) Field investigations on boulder deposits at Central Building Research Institute, Roorkee.

The Projects were considered both by the Executive Councils of the National Laboratories and the Working Group.

The Agenda and Proceedings of the B.S.I.R. held on 30-9-1970, which includes Proceedings of the Technical Committee of B.S.I.R. held on 28-9-1970 and Resume of the Fourth Five Year Plan programmes have been sent to the Directors/Heads of the National Laboratories for action.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 33 69-PU. Vol. III Pt. II, dated 8-12-1970]

Recommendation

Yet another aspect of these pilot plants is the fact that some of them were what the Kane Committee characterised as "attempts at rediscovery" of "processes already well known elsewhere, sometimes within the country itself." That Committee gave at least six instances of such pilot plants. The investment in two of these amounted to Rs. 4.90 lakhs; data in regard to others has not been furnished.

[Sl. No. 35 (Para 58) of Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action Taken

The observations of the Committee have been taken note of.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 33 69-PU. Vol. III Pt. II, dated 4-12-1970]

Recommendation

The data furnished to the Committee also shows that the pilot plants in some cases continued even after indigenous production in the commercial sector had been established on the basis of know-how obtained from elsewhere. The Kane Committee cited two such cases—one involving production of cryolite in the National Metallurgical Laboratory and the other relating to vanadium pentoxide catalyst at the National Chemical Laboratory. The Committee are left with the impression that the laboratories concerned showed no appreciation of the developmental needs of the industry for whose benefit the pilot projects were meant.

[Sl. No. 36 (Para 5.9) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

'The observations of the Committee have been taken note of.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU, Vol. III, Pt. II, dated 4-12-1970].

Recommendation

By far the greatest drawback, in the Committee's opinion, about the pilot projects in the laboratories is that they were initiated without enlisting the participation of the industry. As these plants were meant to demonstrate the commercial feasibility of processes, the entrepreneur interested in its development should have been located and his identification with the project secured. Instead, as pointed out by the Kane Committee, "the search for the sponsor began after the investigations were completed and rarely succeeded." The Committee consider it extraordinary that an institution like the C.S.I.R., whose job is to encourage application-oriented research should have proceeded about its projects in this fashion. The Committee feel that the C.S.I.R. should now take stock of the position in regard to pilot plants and tighten the procedures for the clearance and establishment of these projects. This should be secured by the following steps:

- (i) All proposals for establishment of pilot plants should receive the most searching scrutiny. Approval should be given only if the product or the process involved is new or the knowhow involved is a secret held by a few firms which it would be worth-while to disseminate.

- (ii) No proposal should be ordinarily approved without a sponsor from industry or government and to encourage investment by the concerned interests, the laboratories should consider giving performance guarantees, as is reported to be done by the National Chemical Laboratory.
- (iii) A pilot plant should not be allowed to drag on indefinitely as its very purpose i.e. the demonstration of the viability of a process would be defeated thereby. The CSIR should therefore, prescribe an outside time-limit for the completion of these projects.
- (iv) The findings in a later section of the Report would show that some laboratories have shown very little cost-consciousness while implementing pilot plants. Pilot plants under such circumstances become a self-defeating exercise. The estimates for these projects should be most carefully drawn up and costs strictly controlled.
- (v) The SCIR should set up immediately competent appraisal teams as suggested by the Kane Committee to review the existing plants. This should be done within a prescribed time-limit and projects not found to be useful should be scrapped, so that further time and money are not expended on them.

[Sl. No. 37, (para 5.10) of Appendix to 122nd Report-(Fourth Lok Sabha)].

Action Taken

The above observations of the Pilot Plant Committee, C.S.I.R. (Kane Committee Report) have been brought to the notice of all the Heads of National Laboratories/Institutes vide CSIR letter No. 3/3/69-PU. Vol. III, dated 22-10-1970 (Appendix).

The Committee's Report was last discussed at length at the meeting of the Technical Committee of the C.S.I.R. and the C.S.I.R. at their meetings held on 28-9-70 and 30-9-70 respectively. The Board decided as under:—

The Board expressed its appreciation to Dr. Kane and the Members of the Committee for the work they had done. It felt that many of the recommendations of the Committee were useful and that the Executive Councils and Directors should, therefore, carefully consider incorporating the recommendations of the Committee into the pro-

grammes of the laboratories. In doing so, the comments of the Directors on the Report should also be kept in view."

The proceedings of the Technical Committee of the B.S.I.R. and B.S.I.R. have been circulated to all the Directors of the National Laboratories|Institutes.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III. Pt. II, dated 4-12-1970].

APPENDIX

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

Rafi Marg,

No. 3/3/69-PU.Vol. III Pt. II

New Delhi, the 22nd Oct. 1970

From

The Secretary,
Council of Scientific & Industrial Research

To

The Heads of all National Laboratories|Institutes.

SUBJECT:—122nd Report of the PAC (1969-70)—Fourth Lok Sabha—
Pilot Plants.

Sir,

I am directed to state that the Public Accounts Committee (1969-70) (Fourth Lok Sabha) in their 122nd Report while dealing with the Pilot Plants set up in the CSIR National Laboratories/Institutes has observed as under:—

5.10. "By far the greatest drawback, in the Committee's opinion, about the pilot projects in the laboratories is that they were initiated without enlisting the participation of the industry. As these plants were meant to demonstrate the commercial feasibility of processes the entrepreneur interested in its development should have been located and his identification with the project secured. Instead, as pointed out by the Kane Committee, "the Search for the sponsor began after the investigations were completed and rarely succeeded." The Committee consider it extra-

ordinary that an institution like the CSIR, whose job is to encourage application-oriented research should have proceeded about its projects in this fashion. The Committee feel that the CSIR should now take stock of the position in regard to pilot plants and tighten the procedures for the clearance and establishment of these projects. This should be secured by the following steps:—

- (i) All proposals for establishment of pilot plants should receive the most searching scrutiny. Approval should be given only if the product or the process involved is new or the know-how involved is a secret held by a few firms which it would be worthwhile to disseminate.
- (ii) No proposal should be ordinarily approved without a sponsor from industry or Government and to encourage investment by the concerned interests, the laboratories should consider giving performance guarantees, as is reported to be done by the National Chemical Laboratory.
- (iii) A Pilot Plant should not be allowed to drag on indefinitely, as its very purpose, i.e., the demonstration of the viability of a process would be defeated thereby. The CSIR should, therefore, prescribe an outside time-limit for the completion of these projects.
- (iv) The findings in a later section of the Report would show that some laboratories have showed very little cost-consciousness while implementing pilot plants. Pilot Plants under such circumstances become a self defeating exercise. The estimates for these projects should be most carefully drawn up and costs strictly controlled.
- (v) The CSIR should set up immediately competent appraisal teams as suggested by the Kane Committee to review the existing plants. This should be done within a prescribed time-limit and projects not found to be useful should be scrapped, so that further time and money are not expended on them."

5.17 ".....The Committee feel that laboratories doing applied work should show a better sense of awareness of the cost of their work vis-a-vis expected benefits....."

The recommendations/observations of the PAC are based on the Report of the Pilot Plant Committee which were considered by the

CSIR at the special meeting held on 30-9-70 convened for the purpose
The President, CSIR said that—

"There did appear to be considerable duplication of research work, both within the CSIR and between it and the other R & D Agencies. Cases involving such duplication should be immediately identified and discontinued forthwith."

It is requested that the observation of the PAC may kindly be taken note of for future guidance.

Yours faithfully,
(I. N. Mathur)
Deputy Secretary.

Recommendation

The Committee disapprove of the fact that the Regional Research Laboratory, Jorhat proceeded with the setting up of a vertical kiln plant contrary to a decision of the governing body of C.S.I.R. that the feasibility of the project should be investigated first. The Committee would like to be apprised of the explanation of the laboratory for this extraordinary course of action and the steps being taken by the C.S.I.R. to ensure that cases of this type do not recur. It should also be examined how the laboratory found funds for this project, when it had not been approved by C.S.I.R.

[Sl. No. 38 (Para 516) of Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action taken

The Director, Regional Research Laboratory, Jorhat while explaining the circumstances leading to the setting up of the vertical shaft kiln has stated that the laboratory did not incur any major expenditure on this project. Whatever expenditure was needed came within the competence of the Director vide his letter No. 27(5) 69-Est. dated 26.6.70 (Appendix-I).

The National Laboratories Institutes have been requested not to set up in future any pilot plant without the prior approval of the competent authority vide letter No 33 69—PU dated 30-9-70 (Appendix-II).

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No 33/69-PU, Vol. III, Pt. II, dated 4-12-1970].

APPENDIX I

REGIONAL RESEARCH LABORATORY, JORHAT, (ASSAM)

Dated May 26, 1970

The Secretary,
 Council of Scientific & Industrial Research,
 Rafi Marg, New Delhi.

SUBJECTS.—Public Accounts Committee—Information asked for
 by—consideration of Audit Report (Civil), 1969.

Sir,

Please refer to your letter No. 3/3 (35) 70-PU dated 7/8th May, 1970 on the above subject. The position regarding the installation of a vertical shaft kiln proper in the Reional Research Laboratory, Jorhat, was made available to the CSIR earlier. However, the position is as follows:—

It is incorrect to say that a vertical shaft kiln plant has been set up at this Laboratory contrary to the decision taken by the Governing Body of the CSIR. We had submitted a proposal to set up a complete integrated 30 tons/day capacity vertical shaft kiln plant at a cost of Rs. 22.00 lakhs to the Governing Body of the CSIR. The Governing Body wanted the technical feasibility of this to be examined by the then Central Design & Engineering Unit of the CSIR. The Central Design & Engineering Unit had examined it and made certain suggestions and they recommended the advisability of having a 30 tons day capacity shaft kiln located at Jorhat. The Governing Body in a subsequent meeting constituted the Expert Committee to go into the matter. However, in view of the pressing demand from the industry and the inordinate delays, the Laboratory on its own decided not to press for the installation of an integrated vertical shaft kiln plant at a cost of Rs. 22.00 lakhs. Instead it indigenously fabricated only the kiln proper which was needed for obtaining the scale-up design data for 100 and 200 tons capacity shaft kilns. This kiln was designed and fabricated utilising some of the surplus materials made available from the Oil & Natural Gas Commission and the Oil India Ltd., Duliajan. The laboratory did not incur any major expenditure on this and whatever expenditure was needed came within the competence of the Director. The kiln was installed and successfully operated and demonstrated to perspective enterpreneur.

ers and on the basis of this full design for a 100 and 200 tons day capacity shaft kilns have been worked out. In fact by not pressing for this, the Laboratory had saved the CSIR a sum of Rs. 22.00 lakhs.

Yours faithfully,
Sd/- M. S. IYENGAR,
Director.

APPENDIX II

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

No. 3/3/69-PU. Vol. III. Pt. II

Rafi Marg,
New Delhi, the 30th Sept., 1970.

From

The Secretary,
Council of Scientific & Industrial Research.

To

The Heads of the National Laboratories/Institutes.

SUBJECT:—122nd Report of the PAC—1969-70—Pilot Plants.

Sir,

I am directed to state that the P.A.C. (1969-70) in their 122nd Report (Fourth Lok Sabha), while considering the setting up of a Pilot Plant by one of the National Laboratories Institutes without prior approval of the Governing Body of the SCIR, have disapproved of the fact that the National Laboratories should proceed with the setting up of Pilot Plants without preparing a feasibility report and studying the technical and economic feasibility of the Project. The Committee has taken exception to the action of the Laboratory and has observed that such cases should not recur in future.

It is requested that the observations of the P.A.C. may kindly be taken note of for compliance.

Yours faithfully,
Sd/- (L. RAMANATHAN),
Under Secretary.

Recommendation

The magnesium plant at the National Metallurgical Laboratory, Jamshedpur is an instance of a pilot plant undertaken in haste, without adequate investigation into its cost aspects. In the result, the project which was initially estimated to cost Rs. 57.73 lakhs will now cost Rs. 1.27 crores. The Committee feel that laboratories doing applied work should show a better sense of awareness of the cost of their work vis-a-vis expected benefits. The Committee have made some suggestions on this point elsewhere in the Report.

[Sl. No. 39 (Para 5.17) of Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action taken

The Director, National Metallurgical Laboratory, Jamshedpur has stated that the recommendation of the Committee has been noted and all endeavours will be made to see that more realistic cost estimates are prepared while initiating such projects in future.

The recommendations/observations of the Committee have however, been forwarded to the National Laboratories/Institutes for guidance vide CSIR letter No. 3/3 69-PU, Vol. III, Pt. II, dated 22nd October, 1970 (Appendix).

[Cabinet Secretariat]

Department of Scientific and Industrial Research
(C.S.I.R.)

No. 3/3/69-PU Vol.III Pt.II dated 4-12-1970]

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

Rafi Marg.

No. 3/3 69-PU Vol. III, Pt. II, New Delhi, the 22nd October, 1970.
From

The Secretary,

Council of Scientific & Industrial Research.

To

The Heads of all National Laboratories/Institutes.

**SUBJECT:— 122nd Report of the PAC (1969-70) Fourth Lok Sabha
Pilot Plants.**

Sir,

I am directed to state that the Public Accounts Committee (1969-70) (Fourth Lok Sabha) in their 122nd Report while dealing

with the Pilot Plants set up in the CSIR National Laboratories/Institutes has observed as under:—

5.10. "By far the greatest drawback, in the Committee's opinion, about the pilot projects in the laboratories is that they were initiated without enlisting the participation of the industry. As these plants were meant to demonstrate the commercial feasibility of processes, the entrepreneur interested in its development should have been located and his identification with the project secured. Instead, as pointed out by the Kane Committee, 'the search for the sponsor began after the investigations were completed and rarely succeeded.' The Committee consider it extraordinary that an institution like the CSIR whose job is to encourage application-oriented research should have proceeded about its projects in this fashion. The Committee feel that the CSIR should now take stock of the position in regard to pilot plants and tighten the procedures for the clearance and establishment of these plants. This should be secured by the following steps:

- (i) All proposals for establishment of pilot plants should receive the most meticulous scrutiny. Approval should be given only if the product or the process involved is new or the know-how involved is a secret held by a few firms which it would be worthwhile to disseminate.
- (ii) No proposal should be ordinarily approved without a sponsor from industry or Government and to encourage investment by the concerned interests, the laboratories should consider giving performance guarantees, as is reported to be done by the National Chemical Laboratory.
- (iii) A Pilot Plant should not be allowed to drag on indefinitely, as its very purpose i.e. the demonstration of the viability of a process would be defeated thereby. The CSIR should therefore, prescribe an outside time-limit for the completion of these projects.
- (iv) The findings in a later section of the Report would show that some laboratories have showed very little cost-

consciousness while implementing Pilot Plants. Pilot Plants under such circumstances become a self defeating exercise. The estimates for these project should be most carefully drawn up and costs strictly controlled.

(v) The CSIR should set up immediately competent appraisal teams as suggested by the Kane Committee to review the existing plants. This should be done within a prescribed time-limit and projects not found to be useful should be scrapped, so that further time and money are not expended on them."

5.17. ".....The Committee feel that laboratories doing applied work should show a better sense of awareness of the cost of their work *vis-a-vis* expected benefits....."

The recommendations/observations of the PAC are based on the Report of the Pilot Plant Committee which were considered by the CSIR at the special meeting held on 30th September, 1970 convened for the purpose. The President, CSIR said that--

~~There did appear to be considerable duplication or research work, both within the CSIR and between it and the other R & D Agencies. Cases involving such duplication should be immediately identified and discontinued forthwith."~~

It is requested that the observations of the PAC may kindly be taken note of for future guidance

Yours faithfully,
(I. N. MATHUR)
Deputy Secretary

Recommendation

In the Committee's opinion, the coal gasification project started at Hyderabad, is a glaring example of mismanagement, culminating in waste of public funds given for scientific research.

[Sl. No. 40 (Para 5.43) of Appendix to the PAC's 122nd Report (Fourth Lok Sabha)]

Action taken

The observations made by the Committee have been brought to the notice of the Director, Regional Research Laboratory, Hydera-

had *vide* CSIR letter No. 3/3/69-PU.Vol.III dated 31st October, 1970
(copy attached—Appendix—I).

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III. Pt. II. dated 4-12-1970].

APPENDIX I

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

No. 3/3/69-PU. Vol. III.

Rafi Marg
New Delhi, 31st October, 1970.

From

The Secretary,
Council of Scientific and Industrial Research.

To

The Director,
Regional Research Laboratory,
Hyderabad.

SUBJECT:—122nd Report (1969-70) Fourth Lok Sabha—observations' recommendations relating to Coal gasification plant at R.R.L., Hyderabad.

Sir,

I am directed to forward herewith an extract from the 122nd Report (1969-70) of the Public Accounts Committee containing their observations/recommendations on the Coal Gasification Plant at R.R.L., Hyderabad.

Yours faithfully,

Sd/- (C. RAMANATHAN),
Under Secretary.

Recommendation

In the first place, there was a confusion about the objectives of the Project. As pointed out by the Kane Committee, it was "never clear whether the plant was to be established to produce synthesis gas for production of ammonia or industrial and domestic gas to be supplied to the city of Hyderabad." As initially approved, the project envisaged the installation of a continuously operating plant that would produce synthesis gas or equivalent fuel gas. In successive revisions of the estimates for the project that thereafter occurred, provision was made for additional units which were necessary only for a scheme which envisaged supply of town gas or industrial gas. However, items like distribution lines, gas meters, burners, etc., which were essential for such a scheme were left out. Moreover, in the final estimate there was no provision even for a conversion unit without which, according to the Kane Committee, production of synthesis gas was also not possible.

[Sl. No. 41 (Para 5.44) of Appendix to the 122nd Report--(Fourth Lok Sabha)]

Action taken

The observations made by the Committee have been brought to the notice of the Director, Regional Research Laboratory, Hyderabad vide CSIR letter No. 33 69 PU Vol. III dated 31st October, 1973.

Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 33 69 PU Vol. III Pt. II dated 4.12.1973.

Recommendation

In the first place, the estimates for the project were not drawn up with care with the result that by stages the cost escalated from Rs. 21 lakhs to Rs. 1,69 crores. How faulty the estimating was would be evident from the fact that the first estimates were arrived at before the laboratory had even ascertained the cost of the equipment from the suppliers.

[Sl. No. 42 (Para 5.45) of Appendix to the 122nd Report--(Fourth Lok Sabha)]

Action taken

The observations made by the Committee have been brought to the notice of the Director, Regional Research Laboratory, Hyderabad vide SCIR letter No. 33 69 PU Vol. III dated 31st October, 1973.

Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 33 69 PU Vol. III Pt. II dated 4.12.1973.

Recommendation

Thirdly, the equipment that was ordered was a semi-commercial scale unit of a type which had been successfully developed for commercial operation overseas. If the idea of the project was to study the application characteristics of coal, a smaller plant on a laboratory scale might have sufficed. The CSIR have themselves admitted that instead of choosing the step of developing a gasification process *de novo* and proving it on a small plant and taking it on to an intermediate scale pilot plant, the other alternative of buying an intermediate scale plant based on the best know-how available,....was chosen." It is clear therefore that the project was undertaken on a much larger scale than necessary.

[SI. No. 43 (Para 5-46) of Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action taken

The observations made by the Committee have been brought to the notice of the Director, Regional Research Laboratory, Hyderabad by CSIR letter No. 33-69 PU, Vol. III dated 31st October, 1970.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 33-69 PU, V I III Pt. II dated 4.12.1970]

Recommendation

Fourthly, orders for the large-scale equipment were placed shortly before a large-scale revision of estimates which raised its cost from Rs. 45.50 Lakhs to Rs. 129 Lakhs took place. This was not prudent, as it committed the CSIR irretrievably to the project.

[SI. No. 44 (Para 5-47) of Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action taken

The observations made by the Committee have been brought to the notice of the Director, Regional Research Laboratory, Hyderabad by CSIR letter No. 33-69 PU, Vol. III dated 31st October, 1970.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 33-69 PU V I III Pt. II dated 4.12.1970]

Recommendation

In the fifth place, a pilot plant involving such a substantial investment was proceeded with, without securing the association of prospective users of the process with the venture.

[Sl. No. 45 (Para 5.48) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The observations made by the Committee have been brought to the notice of the Director, Regional Research Laboratory, Hyderabad vide CSIR letter No. 3/3/69-PU. Vol. III dated 31st October, 1970.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III Pt. II dated 4.12.1970]

Recommendation

Lastly, due to a failure of co-ordination, the fact that a similar pilot plant had been successfully commissioned in another laboratory, escaped notice both at the time the project was sanctioned and at a subsequent stage when the revised estimates were approved. It is regrettable that when the equipment with that laboratory was capable of being used for the purpose of this venture, orders were unnecessarily placed for a similar equipment for this project.

[Sl. No. 46 (Para 5.49) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The observations made by the Committee have been brought to the notice of the Director, Regional Research Laboratory, Hyderabad vide CSIR letter No. 3/3/69-PU. Vol. III dated 31st October, 1970.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III Pt. II dated 4.12.1970]

Recommendation

The cumulative result of all these lapses has been an infructuous expenditure of Rs. 35.12 lakhs with further commitments to the tune of Rs. 33.38 lakhs. Costly equipment imported for the project lies unpacked with the danger of its being rendered absolutely useless.

[Sl. No. 47 (Para 5.50) of Appendix to the 122nd Report (Fourth Lok Sabha)].

Action taken

The observations made by the Committee have been brought to the notice of the Director, Regional Research Laboratory, Hyderabad *vide* CSIR letter No. 3|3|69-PU. Vol. III dated 31st October, 1970.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3|3|69-PU. Vol. III. Pt. II. dated 4-12-1970].

Recommendation

The Committee are dissatisfied with the working of this pilot plant. It has been in operation for over a decade during which the expenditure on it has amounted to over Rs. 1.32 crores. The bulk of the expenditure (Rs. 96.71 lakhs) was on recurring expenses for which detailed estimates were not prepared before the project was sanctioned. The overseas firm which supplied the equipment (cost Rs. 20 lakhs) had recommended a process for its operation which the laboratory did not find suitable under Indian raw material conditions.

[Sl. No. 49 (Para 5.68) of Appendix to the 122nd Report (Fourth Lok Sabha)]

Action Taken

The observations of the Committee have been noted. In this connection reply to recommendation at Sl. No. 53 may kindly be referred to.

[Cabinet Secretariat, Department of Scientific & Industrial Research (C.S.I.R.) No. 3|3|69-PU. Vol. III. Pt. II. Dated 2-11-1970].

Recommendation

The Plant was set up to establish the suitability of low-shaft furnaces for production of pig iron from locally available ores in various States. A variety of ores have been tested but the results have not been satisfactory either in terms of cost or quality of the end product. The cost has amounted to Rs. 1,447 per tonne, against which the product has been sold at Rs. 310 per tonne. It has been stated that "the technique evolved by the laboratory can be exploited commercially", but the Committee are sceptical about this claim in the absence of any assessment in this regard by expert engineering and design consultants familiar with the problems of scaling-up of operation.

[Sl. No. 50 (Para 5.69) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The observations of the Committee have been noted. In this connection reply to recommendation at Sl. No. 53 may kindly be referred to.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III. Pt. II. Dated 2-11-1970]

Recommendation

Another significant feature of the operation of this plant is that, except for one state, which contributed towards investigation expenses to some extent, none of the other (13) States sponsored work on this project. Consequently the laboratory has had to carry out the work on its own, while the prospective user remained dissociated from it.

[Sl. No. 51 (Para 5.70) of Appendix to the 122nd Report --(Fourth Lok Sabha)]

Action taken

The observations of the Committee have been noted. In this connection reply to recommendation at Sl. No. 53 may kindly be referred to.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III. Pt. II. Dated 2-11-1970]

Recommendation

A Working Group constituted by the CSIR recommended that this project should be scrapped. Thereafter, an Expert Committee on Pilot Plants (Kane Committee) set up by the CSIR pointed out that the Plant has "found no useful application". "So far", that Committee stated, "not a single low-shaft furnace has been established in the country for production of pig iron with know-how obtained from this plant."

[Sl. No. 52 (Para 5.71) of Appendix to the 122nd Report --(Fourth Lok Sabha)]

Action taken

The observations of the Committee have been noted. In this connection reply to recommendation at Sl. No. 53 may kindly be referred to.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III. Pt. II. Dated 2-11-1970]

Recommendation

Taking all the foregoing considerations into account, the Committee feel that it would not be wise to continue this pilot plant any longer. The matter should be remitted for an immediate decision by the Board of Scientific and Industrial Research.

[Sl. No. 53 (Para 5.80) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The matter was discussed by the Scientific Sub-Committee of the Executive Council of National Metallurgical Laboratory, Jamshedpur on 25-9-70. It was decided that the Low Shaft Furnace may be moth-balled with adequate precautions and that the Steel Plants and the Ministry of Steel and Heavy Engineering be contacted for any possible project work to be sponsored by them. The staff working on this pilot plant may be utilised for other projects.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU, Vol. III, Pt. II, Dated 2-11-1970].

Recommendation

The Committee feel that there has been avoidable delay in implementing this project which could be potential foreign exchange conservation. The proposal for a pilot plant was put up for approval sometime in 1964, but it was not finally approved till 1966. Thereafter, the Heavy Electricals, who were to supply a transformer needed for operating this plant delayed the supply by a year.

[Sl. No. 54 (Para 5.79) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The observations of the Committee have been noted.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU, Vol. III, Pt. II, dated 2-11-1970].

Recommendation

The Committee note that the commercial feasibility of the process has been established by a study conducted by a firm of engineering consultants as well as the Central Engineering and Designing Organisation, C.S.I.R. Necessary upscaling operations to corobo-

rate these findings are stated to be in progress. These should be expeditiously completed and the N.R.D.C., which is stated to have offers from certain interested parties should also finalise the arrangements for leasing out of the process.

[Sl. No. 55 (Para 5.80) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The Special transformer which was received at Regional Research Laboratory, Hyderabad on 10-5-69 from the Bharat Heavy Electricals, Bhopal was installed and commissioned on 19-2-1970. The Regional Research Laboratory, Hyderabad intimated on 20-8-70 that 4 experiments have been carried out and further experiments are in progress.

The National Research Development Corporation (N.R.D.C.) have intimated on 2-9-70 that the Board of Directors of the Corporation have since (at meeting held on 4th July, 1970) decided to licence the know-how for the manufacture of silicon carbide to M/s. Indian Metals and Ferro Alloy Ltd., Bhubaneshwar and the licence agreement with the party is under execution.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3369-PU. Vol. III. Pt. II. dated 2-11-1970].

Recommendation

The Committee note that the commercial feasibility of the process has been established by a study conducted by a firm of engineering consultants as well as the Central Engineering and Designing Organisation, C.S.I.R. Necessary "upscaling operations" to corroborate these findings are stated to be in progress. These should be expeditiously completed and the N.R.D.C. which is stated to have offers from certain interested parties should also finalise the arrangements for leasing out of the process.

[Sl. No. 55 (Para 5.80) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The process noted in this paragraph relates to the manufacture of Silicon Carbide developed at the Regional Research Laboratory, Hyderabad. The process was upscaled. A two-ton-per-day-plant

has since been operated by the Regional Research Laboratory, Hyderabad. The process has also been licensed to M/s Indian Metal & Ferro Alloys Ltd., Bhubaneshwar, on the following terms and conditions:—

Lumpsum Premium	: NIL
Recurring Royalty	: 2 per cent on net ex-factory sales
Nature of Licence	: Non-Exclusive
period of Licence	: 14 years

[Ministry of Education and Youth Services O.M. No. G. 25015/12/70-Accounts II, dated 21-11-1970].

Recommendation

The Committee feel that the working of the drug farms run by C.S.I.R. needs to be greatly improved.

[Sl. No. 57 (Para 6.20) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

- The observations of the Committee have been brought to the notice of the Regional Research Laboratory, Jammu vide CSIR letter No. 3/3/69-PU. Vol. III dated 20-6-1970. (Appendix-II).

[Cabinet Secretariat, Department of Scientific & Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III. Pt. II. dated 17-10-1970].

Recommendation

Over the last six years ending 1968-69, three of these farms of Jammu, Kashmir and Haldwani have run up a deficit of Rs. 18.70 lakhs, as their receipts have consistently fallen short of their recurring expenses.

[Sl. No. 58 (Para 6.21) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The observations of the Committee have been brought to the notice of the Regional Research Laboratory, Jammu vide CSIR letter No. 3/3/69-PU. Vol. III dated 20-6-1970. (Appendix-II).

[Cabinet Secretariat, Department of Scientific & Industrial Research (C.S.I.R.) No. 3/3/69-PU, Vol. III, Pt. II, dated 17-10-1970].

Recommendation

The area available has also not been fully cultivated. Taking the farm at Haldwani, for instance, the area under cultivation in 1969 was 95 acres as against the total area of 250 acres. The yield has also been coming down, as would be evident from the data given in the Audit paragraph.

[Sl. No. 59 (Para 6.22) of Appendix to the 122nd Report--(Fourth Lok Sabha)].

Action taken

The position is explained in reply to recommendation at Sl. No. 60 of appendix of 122nd Report of the P.A.C. (1969-70)- Fourth Lok Sabha.

The position is explained in reply to recommendation at Sl. No. 60 of appendix to 122nd Report of the P.A.C. (1969-70) Fourth Lok

Recommendation

The Committee would like the CSIR to take steps to make these farms self-sufficient units. As the purpose of these farms is to demonstrate to outside cultivators the feasibility of growing of certain medicinal and other plants on a commercial scale, it is essential that these farms should be considered as commercial units and made to work as such. It is also imperative that the C.S.I.R. should maintain close contact with the Forest Department in various States to whom project reports on the important items of production in the farms should be circulated. A time-targetted programme should be drawn up for this purpose, covering the principal products grow in the farms.

[Sl. No. 60 (Para 6.23) of Appendix to the 122nd Report--(Fourth Lok Sabha)].

Action taken

Drug Farms, Haldwani:

The farm requires facilities for (i) irrigation (ii) Fencing (iii) Distillation units (iv) labour huts (v) Stores and tractor sheds, in order to make it a viable entity. As regards irrigation, fencing and improved distillation, necessary provision has been made in the

budget. As regards the putting up of permanent structures is concerned there is a legal difficulty. The U.P. Government does not agree to the payment of fair compensation for the permanent structures put up by CSIR, at the time of reversion of land to the State Government. The matter is being taken up with the State Government at the highest level.

The farm was set up in order to demonstrate to the farmers the cultivation of medicinal and aromatic plants. A start was made with *Mentha arvensis*; by now the cultivators have taken up the cultivation at a large scale in the U.P. Terai Region. The unit was declared commercial some years back but later on it was felt by the members of the Executive Council that it will not serve the purpose if it is run as such, as it was decided to take up other aromatic and medicinal plants which can be of commercial success in the area. In order to chalk out the cropping programme, a special Sub-Committee was constituted with Dr. S. S. Bains, of I.A.R.I. as Convenor by the Executive Council, Central Indian Medicinal Plants Organisation (C.I.M.P.O) in its Meeting held in October, 1969; the report of the Committee is awaited.

Drug Farms, Jammu & Kashmir:

As regards the farms in Jammu & Kashmir these farms were in a very bad shape when CSIR took over. The basic requirements such as irrigation, tractor, power and other facilities were not available. Plantation had out-lived its productive age. These facilities have now been provided for and it is hoped that within 2 to 3 years the farms shall turn the corner.

The other observations recommendations made by the Committee have been brought to the notice of Central Indian Medicinal Plants Organisation (C.I.M.P.O) for compliance.

A Report on the cultivation of Pyrethrum and Belladonna in the Jammu and Kashmir State has been prepared by the joint effort of Forest Department, Srinagar and Regional Research Laboratory, Jammu to be considered by a Committee constituted by State Government.

The above replies have been vetted by Audit (A.G.C.R.) vide their D.O. letter No. RR25-5 70-71 350 dated 7th October, 1970 (copy enclosed - Appendix-III).

[Cabinet Secretariat, Department of Scientific & Industrial Research (C.S.I.R.) No. 3/3/69-PU, Vol. III, Pt. II, dated 19-10-1970].

APPENDIX I

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

No. 3|3|69-PU. Vol. III

Rafi Marg.
New Delhi, the 24th June, 1970.

From

The Secretary,
Council of Scientific & Industrial Research.

To

The Heads of the National Laboratories' Institutes.

SUBJECT:—122nd Report of the PAC (1969-70)—Fourth Lok Sabha—recommendations relating to processes awaiting commercial exploitation.

Sir,

I am directed to forward herewith an extract from the 122nd Report of the P.A.C. (1969-70)—Fourth Lok Sabha—on the above subject.

It is requested that the following recommendation may kindly be noted for guidance:—

“The Committee feel that one reason for the gap between industrial research carried out in the CSIR laboratories and its utilisation is that laboratories lack experience in scaling-up operation essential for establishing the commercial viability of process proved on a laboratory scale. If this gap is to be bridged, it is essential that the laboratories should take the help of competent technical consultants in industry before embarking on developments of processes beyond the laboratory stage.”

Action taken on the above recommendation may kindly be intimated to this office from time to time.

Yours faithfully,
Sd/-
(L. RAMANATHAN)
Under Secretary

Copy to:

1. Research Coordination & Industrial Liaison Division.
2. Administrative Coordination Section.
3. Secretary, National Research Development Corporation, Mandi House, New Delhi.

Sd/-
(L. RAMANATHAN)
Under Secretary

• EXTRACT FROM THE 1962-63 REPORT OF THE PAC—FOURTH LOK SABHA—RECOMMENDATIONS RELATING TO PROCESS AWAITING COMMERCIAL EXPLOITATION. (pp.50.51).

The Committee drew attention to a view taken in the 'Get-together' with industry organised by the CSIR in 1965 that the major gap between industrial research and the stage of its utilisation was due to lack of design and engineering services. A recommendation was therefore made that the laboratories should forge close links with technical consultancy bureaus and design engineering firms existing in the country for joint planning of the project engineering and technical feasibility studies. The Committee desired to know how far this recommendation had been implemented and in how many cases outside consultancy services had been enlisted for investigating commercial feasibility of processes. The Director General stated that "this particular recommendation has been implemented and in some cases the work done by the laboratories has been taken up by the consultancy firms. They are designing the plants and taking up the responsibility. I remember there are two cases—may be more—in which the designing firms were prepared to give a guarantee of operation of their processes."

In a written reply, the CSIR have stated that: "the following commercial feasibility Reports were prepared by outside consultancy services Bureaus:—

1. Feasibility Report on Silicon Carbide M/s. M. N. Dastur and Company Calcutta Project at Regional Research Laboratory, Hyderabad.
2. 250 Kg./day of Magnesium Metal by M/s. Industrial Technical Services Private Electrolytic Process at Central Electro-Chemical Research Institute, Karaikudi.

The work in respect of the following has been entrusted to or under consideration:—

Work entrusted to :

1. Preparation of a Project Report for a M/s. Chemical and Metallurgical Design Formed Coke Plant—Central Fuel Research Institute, Jealgora.
2. Consulting Engineers for Magnesium Project for 250 Tonnes/Year at National Metallurgical Laboratory, Jamshedpur.

Under Consideration :

1. Consulting Engineers for preparation of a Project Report and Cost of Estimates of Silicon-National Physical Laboratory, New Delhi.
2. Project Report of the Electronic Components manufacturing Plant—National Physical Laboratory, New Delhi.

Recommendation

The Committee feel that one reason for the gap between industrial research carried out in the C.S.I.R. laboratories and its utilisation is that laboratories lack experience in scaling-up operation essential for establishing the commercial viability of process proved on a laboratory scale. If this gap is to be bridged, it is essential that the laboratories should take the help of competent technical consultants in industry before embarking on developments of processes beyond the laboratory stage.

APPENDIX II**COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH**

No 3/3/69-PU. Vol. III.

Rafi Marg,

New Delhi, the 20th June, 1970

From,

The Secretary,
Council of Scientific & Industrial Research.

To.

The Director,
Regional Research Laboratory,
Jammu (Tawi).

**SUBJECT:—122nd Report of the PAC (1969-70)—Fourth Lok Sabha—
 Loss in running drug farms.**

Sir,

I am directed to forward herewith an extract from the 122nd Report of the Public Accounts Committee (1969-70)—Fourth Lok Sabha on the above subject.

The recommendations of the P.A.C., in this connection are reproduced below:—

“The Committee feel that the working of the drug farms run by CSIR needs to be greatly improved.

Over the last six years ending 1968-69, three of these farms at Jammu, Kashmir and Haldwani have run up a deficit of Rs. 18.70 lakhs, as their receipts have consistently fallen short of their recurring expenses.

The area available has also not been fully cultivated. Taking the farm at Haldwani, for instance, the area under cultivation in 1969 was 95 acres against the total area of 250 acres. The yield has also been coming down, as would be evident from data given in the Audit paragraph.

The Committee would like the CSIR to take steps to make these farms self-sufficient units. As the purpose of these farms is to demonstrate to outside cultivators the feasibility of growing of certain medicinal and other plants on a commercial scale, it is essential that these farms should be considered as commercial units and made to work as such. It is also imperative that the CSIR should maintain close contact with the Forest Department in various States to whom project reports on the important items of production in the

farms should be circulated. A time targetted programme should be drawn up for this purpose, covering the principal products growing the farms.

It is requested that necessary action to implement the recommendations may kindly be taken, under intimation to this office.

You are also requested kindly to send replies to the recommendations to enable us to submit the papers to the Lok Sabha Secretariat through the A.G.C.R. as required.

Yours faithfully,
Sd/-

(L. RAMANATHAN)
Under Secretary

Copy to:

Budget & Accounts Officer.

Sd/-
(L. RAMANATHAN)
Under Secretary

APPENDIX III

D. S. BIST

ASSTT. ACCOUNTANT GENERAL

D.O. No. RR25-5/70-71/350

OFFICE OF THE
ACCOUNTANT GENERAL, CENTRAL REVENUES

New Delhi-1, the 7th October, 1970

Dear Shri Ramanathan,

Kindly refer to your D.O. letters No. 3/3/69-PU. Vol. III. Pt. II, dated 14-9-70 and 16-9-70 forwarding draft 'Notes' in pursuance of the Public Accounts Committee's recommendations at serial Nos. 18, 30, 57, 58, 59 and 60 of the Appendix to their 122nd Report (4th Lok Sabha).

2. We have no comments to offer on the draft 'Notes'.

3. One copy of each draft 'Note' and the supporting papers received therewith are returned.

Yours sincerely,

Sd/-
(D. S. BIST)

Shri L. Ramanathan,
Under Secretary,
Council of Scientific and
Industrial Research,
NEW DELHI.

TRUE COPY

ATTESTED

(L. Ramanathan)
Under Secretary,
Council of Scientific and
Industrial Research,
Rafi Marg, New Delhi-1.

Recommendation

The Committee note that the National Botanic Gardens is stated to have successfully cultivated plantago ovata. It has been estimated that seed and husk of this product worth about Rs. 2 crores are being exported every year. The Committee desire that the National Botanical Gardens should make all efforts to promote commercial cultivation of this plant.

[Sl. No. 61 (Para 6.24) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The National Botanic Gardens have intimated that to promote the commercial cultivation of plantago ovata (Isabgol), the seeds and the know-how are being distributed to the interested growers.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU.Vol. III Pt. II, dated 11-11-1970].

Recommendation

The Committee note that the National Botanic Gardens have also developed a process for production of rose oil which is reported to

be in demand in the international perfumery market. The commercial viability of the process should be established and the question of undertaking its production thereafter considered.

[Sl. No. 62 (Para 6.25) of Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action taken

The process for production of rose oil has been patented recently and steps are being taken to lease out the process to interested party/parties.

The above replies have been vetted by Audit (A.G.C.R.) vide their D.O. letter Nos. RR25-6/70-71/442 and RR25-11/70-71/440 dated the 7th November, 1970 (copies enclosed—Appendices—II & III).

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III. Pt. II, dated 4-12-1970]

APPENDIX II

D. S. BIST
ASSTT. ACCOUNTANT GENERAL

D.O. No. RR25-6/70-71/442
OFFICE OF THE
ACCOUNTANT GENERAL CENTRAL REVENUE
INDRAPRASTRA ESTATE
New Delhi-1, the 7th November, 1970

Dear Shri Ramanathan,

Kindly refer to your D.O. letter No. 3/3/69-PU. Vol. III Pt. II, dated the 24/25th September, 1970 forwarding draft 'Notes' in pursuance of the Public Accounts Committee's recommendations at Sl. Nos. 13 and 14 of the Appendix to their 122nd Report (4th Lok Sabha).

We have no comments to offer on the draft 'Notes'. A copy of each of the draft 'Notes' and the enclosures thereto are return herewith.

Yours sincerely,
Sd/-
(D. S. BIST)

Shri L. Ramanathan,
Under Secretary,
Council of Scientific and
Industrial Research,
NEW DELHI.

TRUE COPY

ATTESTED

(L. Ramanathan)
Under Secretary,
Council of Scientific and
Industrial Research,
Rafi Marg, New Delhi-1.

APPENDIX III

D. S. BIST
ASST'T. ACCOUNTANT GENERAL

D.O. No. RR25-11/70-71/440

OFFICE OF THE
ACCOUNTANT GENERAL CENTRAL REVENUE
INDRAPRASTHA ESTATE
New Delhi-1, the 7th November, 1970

Dear Shri Ramanathan,

Kindly refer to your D.O. letter No. 3/3/69-PU. Vol. III, Pt. II, dated 13th October, 1970 forwarding draft 'Notes' in pursuance of the Public Accounts Committee's recommendations at Sl. Nos. 19 to 22, 61 and 62 of the Appendix to their 122nd Report (4th Lok Sabha).

2. We have no comments to offer on the draft 'Notes'.

3. One copy of each of the draft 'Notes' and the letter No. NBG/DS/70-228, dated 26th September, 1970 of the Director, National Botanic Garden are returned herewith

Yours sincerely,
Sd/-
(D. S. BIST)

Shri L. Ramanathan,
Under Secretary,
Council of Scientific and
Industrial Research,
NEW DELHI.

TRUE COPY

ATTESTED

(L. Ramanathan)
Under Secretary,
Council of Scientific and
Industrial Research,
Rafi Marg, New Delhi-1.

Recommendation

The Committee are distressed at the vacillation that occurred on the question of housing the Indian Institute of Bio-chemistry and Experimental Medicine. In 1958 a plot measuring 3.82 acres was acquired at Jadavpur for construction of a six-storey building. In October, 1962 after two storeys were completed, the construction work was stopped, partly because of financial stringency and partly because there was a rethinking on the subject. After an Expert Committee examined the question of location of the Institute, it was decided to shift the Institute to Kalyani and for that purpose a plot of land measuring 39 acres was purchased from the Government of West Bengal for Rs. 10.02 lakhs. No building was constructed on this land and in September, 1969, the Executive Council of the Institute reversed the earlier decision. The result is that an amount of Rs. 10.02 lakhs has remained blocked in the land at Kalyani.

[Sl. No. 63 (Para 6.37) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The observations of the Committee have been noted.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III. Pt. II, dated 2-11-1970].

Recommendation

Another unsatisfactory feature of the case is that there was a delay of about six years in disposing of steel acquired for the construction at Jadavpur which became surplus. This resulted in a loss of Rs. 32,200.

[Sl. No. 64 (Para 6.38) of Appendix to the 122nd Report—(Fourth Lok Sabha)]

Action taken

The observations of the P.A.C. have been taken note of.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU.Vol. III Pt. II, dated 4-12-1970].

Recommendation

The Committee are concerned over the heavy accumulation of outstanding utilisation certificates in respect of grants issued by CSIR. As on 31st January, 1970, there were 2,568 outstanding cases involving grants amounting to Rs. 100.70 lakhs pertaining to the years 1958 to 1966-67, for which utilisation certificates were outstanding. Forty-one of these cases involving an amount of Rs. 1.88 lakhs date back to 1958-59. The Committee would like the CSIR carefully to examine the reasons for this heavy accumulation of arrears and obtain the wanting certificates expeditiously.

[Sl. No. 65 (Para 6.45) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The details of cases where utilisation certificates are still awaited have been sent or are being sent to the respective Accountants General who have been requested to expedite the utilisation certificates after necessary audit. Matter has also been discussed at personal level with the Audit Officer and the concerned authorities of the Institutions for expediting the utilisation certificates. Through constant efforts utilisation certificates in 210 cases amounting to Rs. 6.24 lakhs pertaining to the years 1958-59 to 1966-67 as against 2,568 outstanding cases involving grants amounting to Rs. 100.70

lakhs have been obtained during the period from January, 1970 to June, 1970 as per details below:

Year	Position as on 31-1-1970		Position as on 30-6-1970	
	No. of cases in which audited amounts have not yet been received	Figures in lakh:	No. of cases in which audited accounts have not been received	Amount for which audited certificates awaited (Rupees in lakhs)
I	2	3	4	5
1958-59	.	41	1.83	1.22
1959-60	.	53	2.31	2.32
1960-61	.	118	6.08	5.65
1961-62	.	145	4.33	3.51
1962-63	.	111	2.85	2.47
1963-64	.	443	19.80	19.55
1964-65	.	341	12.87	12.49
1965-66	.	603	21.13	20.54
1966-67	.	708	29.36	27.12
	2568	100.70	2538	94.46

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU.Vol. III Pt. II, dated 4-12-1970]

Recommendation

The Committee find that on 1st January, 1970, a sum of Rs. 6,888 was outstanding for recovery from Government departments and outside bodies in respect of services rendered by the Laboratories/Institutions of the C.S.I.R.

[Sl. No. 66 (Para 6.50) of Appendix to the 122nd Report (Fourth Lok Sabha).]

Action taken

Necessary instructions to all the National Laboratories/Institutes have been issued that in future testing fees may kindly be charged in advance from non-government institutions as stated in our reply to recommendation made by the P.A.C. in their 122nd Re-

port (1969-70)—Fourth Lok Sabha at Sl. No. 67 of Appendix to the Report.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-F.U.Vol. III Pt. II, dated 3-10-1970].

Recommendation

While the Committee appreciate that in case of Government Departments and undertakings there is difficulty in recovering the testing fees in advance it is not clear why there should be outstanding against outside bodies. The Committee desire that the CSIR should issue necessary instructions to the laboratories for recovering testing fees in advance from non-Government institutions.

[Sl. No. 67 (Para 6.51) of Appendix to the 122nd Report (Fourth Lok Sabha)].

Action taken

The recommendations of the Committee have been circulated to all the National Laboratories/Institutes vide CSIR letter No. 3/3/69-PU-Vol. III, dated 12th June, 1970 (copy enclosed—Appendix I), asking them that in future testing fees may kindly be recovered in advance from non-government institutions and the testing charges may be fixed in such a manner as to be commensurate with the expenditure incurred and that the testing fees chargeable may also be reviewed periodically.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU.Vol. III Pt. II, dated 3-10-1970].

Recommendation

The Committee would also like the C.S.I.R. to ensure that the testing fees chargeable by the various laboratories are periodically reviewed so that they cover the expenditure actually incurred by the laboratories on the provision of these services. This is necessary in view of the findings of the Kane Committee that charges for testing prescribed by certain laboratories constitute only a fraction of the actual expenditure.

[Sl. No. 68 (Para 6.52) of Appendix to the 122nd Report (Fourth Lok Sabha)].

Action Taken

In this connection reply given to recommendation at Sl. No. 67 may kindly be referred to.

The above replies have been vetted by Audit (A.G.C.R.) vide their D.O. letter No. RR25-1/70-71/331, dated the 28th September, 1970 (copy enclosed—Appendix—II).

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU.Vol. III Pt. II, dated 3-10-1970].

APPENDIX I

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

No. 3/3/69-PU-Vol. III

Rafi Marg,
New Delhi, the 12th June, 1970

From

The Secretary,
Council of Scientific & Industrial Research

To

The Heads of all National Laboratories/Institutes.

SUBJECT:—122nd Report of the PAC (1969-70)—Fourth Lok Sabha—recommendations relating to recoveries of testing fees.

Sir,

I am directed to forward herewith an extract from the 122nd Report of the P.A.C. (1969-70)—Fourth Lok Sabha on the above subject.

The Public Accounts Committee in this connection have made the following recommendations:—

"While the Committee appreciate that in case of Government Departments and Undertakings, there is difficulty in recovering the testing fees in advance it is not clear why there should be outstandings against outside bodies. The Committee desire that the CSIR should issue necessary

instructions to the laboratories for recovering testing fees in advance from non-Government institutions."

"The Committee would also like the CSIR to ensure that the testing fees chargeable by the various laboratories are periodically reviewed so that they cover the expenditure actually incurred by the laboratories on the provision of these services. This is necessary in view of the findings of the Kane Committee that charges for testing prescribed by certain laboratories constitute only 'a fraction of the actual expenditure'."

It is requested that the above recommendations of the Public Accounts Committee may kindly be given effect to.

In future testing fees may kindly be recovered *in advance* from non-government institutions and the testing charges may be fixed in such a manner as to be commensurate with the expenditure incurred and that the charges may also be reviewed periodically.

The receipt of the letter may kindly be acknowledged.

Yours faithfully,
(L. Ramanathan),
Under Secretary.

Extract from 122nd Report of the Public Accounts Committee 1969-70)—Fourth Lok Sabha—Pages 108—110.

OUTSTANDING RECOVERIES OF TESTING FEES

Audit Paragraph

The rules of the Council provides that fees in respect of services rendered by the Laboratories/Institutes of the Council to Government Departments and outside Bodies should be recovered in advance. It was, however, noticed that in respect of ten institutions no advance was taken and a total sum of Rs. 1.03 lakhs was outstanding for recovery on 31st March, 1966. Year-wise details for the amount outstanding and the amounts due by Government Departments and other Bodies are given below:—

Upto	1963-64	1964-65	1965-66	Govt. Departments	Other Bodies
	.	.	.	3,873	5,974
	.	.	.	1,931	8,000
	.	.	.	18,786	64,834
TOTAL	.	.	.	24,590	78,808

[Paragraph No. 3 of Audit Report on the accounts of CSIR for 1965-66].

In written reply the CSIR have informed the Committee that "the normal practice followed by the various National Laboratories/Institutes was to recover the testing fees in advance from non-Government Institutes. Testing fees from Government Departments and Undertakings used to be recovered on completion of the work as Government Departments experienced difficulties in paying such fees in advance. According to the latest information received from the laboratories/institutes, recovery of Rs. 6,888.77 was outstanding on account of testing fees in January, 1970."

"The recoveries of testing charges are made in accordance with the schedule of charges approved by the Executive Council of the concerned laboratory/institute."

About the testing facilities extended by the National Physical Laboratory, the Estimates Committee in paragraph 73 of its 103rd Report (1965-66) had observed that the income derived from testing and certification was less than 10 per cent of the annual expenditure incurred on them, and that the schedule for testing charges which was laid down by the laboratory several years ago had not been revised. The Committee had recommended that the testing charges should be fixed in such a manner as would make them commensurate with the expenditure incurred in this behalf, consistently, of course, with what the industry could bear and that the charges should be reviewed periodically. The Committee have been informed that, "The recommendation of the Estimates Committee made in para 73 of the 103rd Report (1965-66) were brought to the notice of the National Physical Laboratory (NPL) who intimated that new schedule of testing fees is being brought into force."

"The Executive Council of the N.P.L. at its meeting held on 26th August, 1966, considered the revised schedule of testing fees which had been prepared by the laboratory taking into account the time taken in carrying out various tests together with the cost of any special equipment which may have to be fabricated for testing one particular item only. The cost of item tested was also taken into consideration. Several items particularly those which were to be used as standards by the industries and the disproportionate increase in the testing fee which was likely to effect adversely the developing industries will still require to be tested on specially subsidised basis was also taken into account by the Executive Council. It was also proposed to the Executive Council that the fees may be reviewed after one year and a decision taken

whether the new fees should be retained, revised further or brought down in the interest of scientific research and industry."

"The Executive Council approved the revised schedule of testing charges subject to the provision that the fees were not less than those of the National Test House. On the other hand, this should be a little higher."

"The recoveries of testing charges are, generally speaking made in accordance with the schedule of charges approved by the Executive Council of the laboratory/institute concerned from time to time."

"The testing fees are determined taking into account the following factors:

- (i) Salary of the Scientific Staff.
- (ii) Electric and other service charges.
- (iii) Depreciation cost of instrument/equipment.
- (iv) Overhead and miscellaneous charges."

"It may, however, be mentioned that only special tests for which facilities at the existing institutions are not available, are undertaken at the national laboratories provided they do not interfere with the normal work of the laboratories."

The Kane Committee made the following observations in regard to revenue derived by laboratories for sponsored work:

"Discussions at the Laboratories confirmed the earlier conclusions that the revenue earned by the CSIR Laboratories was insignificant and bore little relation to the expenditure. There are a few notable exceptions like the earnings from know-how on Baby food by the CFTRI. Some Directors have also submitted estimates of substantial future earnings. Time alone will show whether these expectations will be realised. Even in the cases where trials were carried out by the CSIR Laboratories on their testing units for the benefit of third parties, the charges levied were a fraction of the actual expenditure. Examples of this are the fees charged by the CFRI to test the washability of coals and by the NML to test ores of the strength of metal and alloys. The Committee was

informed, however, that the fees charged by the CERI not only covered costs but also contributed to overheads."

Recommendation/Conclusion

The Committee find that on 1st January, 1970, a sum of Rs. 6,888 was outstanding for recovery from Government departments and outside bodies in respect of services rendered by the laboratories/institutions of the CSIR.

While the Committee appreciate that in case of Government Departments and Undertakings there is difficulty in recovering the testing fees in advance it is not clear why there should be outstandings against outside bodies. The Committee desire that the CSIR should issue necessary instructions to the laboratories for recovering testing fees in advance from non-Government institutions.

The Committee would also like the CSIR to ensure that the testing fees chargeable by the various laboratories are periodically reviewed so that they cover the expenditure actually incurred by the laboratories on the provision of these services. This is necessary in view of the findings of the Kane Committee that charges for testing prescribed by certain laboratories constitute only "a fraction of the actual expenditure."

APPENDIX II

D. S. BIST
Asstt. Accountant General

D.O. No. RR25-1/70-71/331

OFFICE OF THE
ACCOUNTANT GENERAL, CENTRAL REVENUES,
INDRAPRASTHA ESTATE

New Delhi-1, the 28th September, 1970

Dear Shri Ramanathan,

Kindly refer to your D.O. letter No. 3/3/69-PU. Vol. III dated 9th September, 1970 forwarding draft 'Notes' in pursuance of the Public Accounts Committee's recommendations at Sl. Nos. 66, 67 and 68 of the Appendix to their 122nd Report (4th Lok Sabha).

We have no comments to offer on the draft 'Notes'. A copy of each of the 'Notes' is returned herewith.

Yours sincerely,

Sd/-

(D. S. BIST).

Shri L. Ramanathan,
Under Secretary,
Council of Scientific & Industrial Research,
Rafi Marg, New Delhi.

TRUE COPY

ATTESTED

(L. Ramanathan)

Under Secretary,

Council of Scientific &
Industrial Research,
Rafi Marg, New Delhi.

Recommendation

The Committee are not satisfied with the progress made in adjustment/refund of outstanding advances paid by the various laboratories/institutes of the CSIR. The books of the various laboratories/institutes of the CSIR show a sum of Rs. 189.91 lakhs as outstanding for adjustment as on 31st March, 1966 for the period 1958-59 to 1965-66. Out of this, a sum of Rs. 91.28 lakhs was still outstanding in January, 1970. The Committee desire that vigorous steps should be taken to adjust or recover these outstanding advances expeditiously, as with the lapse of time, there is likelihood of these advances becoming irrecoverable.

[Sl. No. 69 (Para 6.55) of Appendix to the 122nd Report (Fourth Lok Sabha)].

Action taken

The outstanding balance for the period 1958-59 to 1965-66 has been reduced from Rs. 91.28 lakhs mentioned in the Report of the

PAC to Rs. 67.89 lakhs at the end of June, 1970. The category-wise details of the balance are as under:—

Category	Outstanding balance (Rs. in lakhs)
State Govt. Public Undertakings etc.	56.12
Customs authorities & Govt. offices	1.99
DGS & D/Pay & Accounts Officers	4.27
Firms & other private parties	4.69
Subordinate offices for meeting party expenditure	0.82
Total :	67.89

It will be observed that outstanding balances relate mainly to advance payments to State Governments, Public Undertakings etc. These are mostly for deposit works and also include advances for land acquisition. In most cases the works for which the advances have been made, have been completed but the accounts have not been rendered by the Government Departments concerned duly audited. In a few cases, however, the advances are outstanding as the related cases relating to land acquisition are subjudice. The outstandings against the Pay & Accounts Officers represent deposits made for supplies through the D.G.S.&D. which have either yet to materialise or the settlement of which is under correspondence with the concerned authorities. In respect of advances to private firms, etc. the supplies in most cases have been received. In certain cases there are some disputes and the matter is under correspondence with the firms concerned while in others the final claim has not been preferred by the Suppliers.

It will be evident from the position stated above that the advances mainly relate to Government Departments or for supplies already received but the accounts in respect of which have not yet been finalized. The National Laboratories/Institute: have been directed to take special steps to clear the outstanding advances expeditiously vide CSIR letter No. 1/37/69-Aud dated 12th November, 1970 copy enclosed. The Internal Audit Party of the CSIR also looks into these outstanding advances during its periodical inspection of the laboratories/institutes with a view to ensure that proper remedial measures are taken by the laboratories for early settlement of the outstanding claims.

[Cabinet Secretariat, Department of Scientific & Industrial Research (CSIR) No. 3/3/69-PU. Vol. III. Pt. II, dated 4th December, 1970].

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

No. 1(37)/69-Aud.

Rafi Marg,

New Delhi, the 12th Nov., 1970

To

The Heads of all the National Labs./Instts.

SUBJECT:—Finance Sub-Committee Observation—Advances under
Objection Book.

Sir,

The Finance Sub-Committee of CSIR, while reviewing Audit Report on the accounts of the CSIR for 1968-69 in its meeting held on 13th August, 1970, has expressed serious concern about large outstanding balances relating to objection Book Advances. An extract from the proceedings of the Finance Sub-Committee of which the Finance Minister of India is the Chairman is enclosed for information. The Public Accounts Committee has also adversely commented on the outstanding balances.

In the light of the directive of the Finance Sub-Committee, National Labs./Instts. are requested to take special steps for early clearance of the outstanding balances. A quarterly report indicating the outstanding balance at the end of March, June, September & December should be sent to this office in the enclosed proforma. These reports should reach this office by the middle of the month following the quarter to which they relate. Details of the individual items and steps taken to clear them should be indicated.

Receipt of this letter may kindly be acknowledged.

Yours faithfully,

Sd/-

(R. K. MUKHERJI)
Budget & Accounts Officer.

Copy to:—

The Accounts Officers of all the National Labs./Instts.

Extract from the Proceedings of the Finance Sub-Committee
meeting held on 13th August, 1970

Objection Book Outstandings:

The Chairman expressed concern about the large amount of outstanding objections. He urged that special steps should be taken

to clear the outstanding. It was noted that quite a substantial portion of the outstanding were with Govt. purchasing Departments.

Proforma for the Outstanding Balances

Custom Authorities Year & Govt. Stationery Office	Pay & A/Cs Officer/ D.G.S.&D.	State Govt. Dept./ Public Under- taking for Elec- tricity/Land Revenue etc.	Subordi- nate Offi- cers for meeting petty ex- penditure	Private parties for the purchase of sto- res etc.	TOTAL
---	-------------------------------------	---	---	--	--------------

NOTE:—Yearwise break up of the balance should be furnished.

Recommendation

The Committee are not happy over the delay in construction of a Scientific and Industrial Museum in Bombay. The land for the purpose was allotted by the Government of Maharashtra to the CSIR free of cost as early as January, 1964, but it has been under occupation of squatters. Although the squatters were once removed from the site, subsequently, on humanitarian grounds they were again permitted under the order of the State Government to occupy the land. In the meantime the CSIR have incurred an expenditure of Rs. 1.19 lakhs on the staff deployed at the site to avoid further encroachment of land. The Committee would like to question of removal of squatters to be vigorously pursued with the State Government. Alternatively, the CSIR might consider the question of acquiring another piece of land for this purpose.

[Sl. No. 70 (Para 6.58) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

The C.S.I.R. is actively pursuing the matter for the establishment of Mafatlal Scientific and Technological Museum, Bombay.

The common Executive Council of Birla Industrial and Technological Museum, Visvesvaraya Industrial and Technological Museum and Mafatlal Scientific and Technological Museum at its meeting on 18th April, 1970 expressed concern that no progress has been made with regard to the setting up of the Mafatlal Scientific and Technological Museum. The Executive Council have constituted the follow-

ing local Advisory Committee for the Mafatlal Scientific and Technological Museum to pursue the matter effectively:

1. Dr. Moti Chandra, Director, Prince of Wales Museum of Western India, Bombay.
2. President, A.I.M.O., Bombay.
3. Dr. S. G. Patel, Representative, Bombay Municipal Corporation.
4. Shri A. Bose, Chief Curator, Industrial and Technological Museum, CSIR, Bangalore.

It was also recommended that an officer from the museums may be placed full time at the disposal of the Committee to act as an officer-in-charge of Mafatlal Scientific and Technological Museum.

The Executive Council at its earlier meeting held on 4-10-69 had recommended that if delay was anticipated in setting up a museum in the land given by Bombay Government, a start may be made in a rented place. Dr. S. G. Patel of the Bombay Municipal Corporation promised to help in this matter in locating a suitable place.

The Chief Curator of the Museums is taking necessary action in pursuance of the recommendation made above by the Executive Council.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III. Pt. II dated 4-12-1970].

CHAPTER III

RECOMMENDATIONS|OBSERVATIONS WHICH THE COMMITTEE DO NOT DESIRE TO PURSUE IN THE LIGHT OF THE REPLIES OF GOVERNMENT

N I L

CHAPTER IV

RECOMMENDATIONS/OBSERVATIONS REPLIES TO WHICH HAVE NOT BEEN ACCEPTED BY THE COMMITTEE AND WHICH REQUIRE REITERATION

Recommendation

The Committee are of the view that the CSIR, which was set up with a chain of laboratories to serve as the premier centre for applied industrial research in the country, has failed to establish adequate rapport with industry. The expenditure on this organisation since the beginning of the Plans has amounted to Rs. 146.76 crores but the returns on this investment have been meagre.

[Sl. No. 8 (Para 2.11) of Appendix to the 122nd Report—(4th Lok Sabha)]

Action taken

From its very inception the CSIR has been making efforts to maintain relationship with the industry. The different steps taken in this direction have been explained in reply to the recommendation of the Committee vide Sl. No. 22 (Paragraph 4.18 of the Report).

Providing adequate R & D facilities and creating a proper scientific climate are the essential prerequisites of a country which is striving for modernisation and industrialisation. It is not feasible to correlate directly the expenditure involved in creating these basic facilities with quantifiable returns. Yet, with the rising expenditure on R & D, questions are increasingly being asked as to the quantifiable gains derived from such investments. This is not peculiar to India, in fact such queries are also raised in most of the advanced countries. In developing countries, with diverse problems particularly integration between R & D and economic development is not as easy to start assessing in monetary terms the returns accruing from R & D investments. What is important that work in research laboratories should be related to the needs of the country and this is what CSIR is attempting. Consequently, most of the contributions

of national laboratories cannot be evaluated in quantifiable terms.

The establishment of commodity and discipline oriented laboratories has increased scope and opportunity for a large number of scientists to work on various scientific and technological problems for which hitherto or till recently hardly any facility existed in the country. The creation of facilities and proper climate for research in various disciplines has thus increased very substantially the scientific potential and capability of the country in the form of readily available expertise in almost every field. The pooling of specialised knowledge has made it possible for the CSIR Laboratories to act as technical experts and consultants to Central and State Governments, and several public and private sector industries. The scientists of the CSIR Laboratories in collaboration with the Indian Standards Institution are closely associated with the formulation of standards for various items and equipment with a view to improving and maintaining the quality of indigenous manufacturers.

The CSIR has also established facilities in such branches where little scope existed earlier, for example geo-physics, petro-chemical technology, industrial toxicology, oceanography, aeronautics, structural engineering etc.

In addition, CSIR has been giving substantial support to the universities and research institutions by providing grants for research in selected projects and research fellowships. Over Rs. 1 crore is annually spent under this head for building up scientific capability in various branches of science. The Council's extramural research grants, including grants to industrial Research Associations have increased almost twenty times during the past two decades from Rs. 15 lakhs in 1950-51 to Rs. 87 lakhs in 1960-61 and to Rs. 286 lakhs in 1968-69. The share of extramural grants out of the total expenditure incurred by the CSIR in 1968-69 was 15.1 per cent.

Amongst the non-quantifiable benefits, mention may be made of the systematic surveys conducted by the CSIR Laboratories on minerals and other natural resources, evolving processes for upgrading of beneficiation, increasing the overall resources by blending of fast depleting mineral resources with more abundant ones, and indicating ways of making improvements in the quality of products and reducing costs.

The achievements of CSIR Laboratories have to be viewed in this background.

Reply to Recommendation at Sl. No. 19 of the Report may also kindly be referred to in this connection.

[Cabinet Secretariat, Department of Scientific & Industrial Research (CSIR) No. 3/3/69-PU. Vol. III. Pt. II dated 4-12-1970].

Recommendation

The CSIR is an institution meant for conducting applied industrial research. The Committee, therefore, feel that success in its work will have to be judged by the extent to which the processes developed in its laboratories find application in industry. On this criteria, it must be said that the Institution's achievements so far have been very modest.

[Sl. No. 19 (Para 4.15) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

The principal ways in which national laboratories can help in developing resources, promoting growth and accelerating progress of industry are:

- (i) systematic investigation of raw materials, minerals and plants and their evaluation, beneficiation etc.;
- (ii) understanding of scientific principles underlying technological operations leading to improved quality, reduced cost of production and higher productivity;
- (iii) adaptation to Indian environment and needs known and available knowledge;
- (iv) Creation of new knowledge leading to new products and processes and improvement of existing ones; and
- (v) development of skills which are basic for all the above.

The National Laboratories have gained valuable knowledge which they have been providing to Government ministries and organizations, private and public sector undertakings in regard to raw materials and beneficiation. Truly commendable work has been done in this regard. Development of skills in many new directions which did not exist before in this country has also been done. Adaptation work to apply known knowledge to Indian conditions has also been carried out on a substantial scale. Creation of new knowledge leading to new products and processes is a relatively complicated task and, perhaps, in our present situation crying for quick industrialization does not call forth the same priority as the other aspects mentioned. The development of know-how for new products

and processes has to undergo a whole sequence of operation from bench scale research to large scale operation in the production plant such as Research, Development, Engineering, Production, and its after sales services etc. The research laboratories can only deal with the first one and partly the second item of the sequence. In the whole of process and product development, it is the subsequent aspect such as engineering, design, fabrication and the erection of plant, production management and modern marketing techniques which are important to ensure that a research idea becomes fruitful. These aspects are the primary responsibility of industry, these need institutional and organizational support. In the absence of industry taking it up in a big way, CSIR has tried to meet the situation which existed in the country and also to translate the results of researches into commercial production. There have been some failures and there will always be some in any organisation and venture but it has provided valuable lessons both to the laboratories and to the industry. It is now being increasingly realized that consultancy and engineering organisations should come in to fill the gap and industry itself must assume greater responsibility for process and product development. It is competition and compulsion of circumstances that can induce industry to take greater interest in this regard and not go every time abroad for turn-key jobs.

All inventions do not lead to innovation. According to international standards less than 1 per cent of ideas, thought worthy of further industrial research or development, are actually embodied in new processes or new products.

In western countries industrial research and production are integrated. Such close collaborations between research and industry is not obtaining in India. Industrial research activities are concentrated in Government sponsored research establishments and most industries are based on foreign collaboration. The collaborations are generally on turn-key basis and hence dependent on foreign R&D. Further, quite a number of industries enjoy a sellers' market and would not be enthusiastic in utilising results of research. The situation, however, is slowly, but surely, changing.

The achievements of CSIR laboratories and the utilisation of the know-how developed by them need be viewed under afore-mentioned background.

[Cabinet Secretariat,
Department of Scientific and Industrial Research
(CSIR) No. 3/3/69-PU. Vol. III Pt. II dated 11-11-1970].

Recommendation

The position in this regard would be evident from the data regarding utilisation of the results of research in the laboratories which has been furnished by the C.S.I.R. As on 1st April, 1957, 135 processes developed in the laboratories and released to various parties were in production (some of them on a token scale), as against which 95 other released processes had not gone into production, 23 of them since 1964 or even earlier years. Another 240 processes developed in the laboratories had found no takers. The position does not seem to have improved in subsequent years as would be seen from the data given in this section of the Report.

[Sl. No. 20 (Para 4.16) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

In this connection reply to recommendation at Sl. No. 19 of Appendix to the Report may kindly be referred to.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3|3|69-PU. Vol. III Pt. II dated 11th November, 1970].

Recommendation

To what extent the laboratories made a dent on industrial production could be estimated from the fact that the value of the products turned out by the processes released amounted to Rs. 453 lakhs in 1966-67, as against the national industrial output of about 5,000 crores and an expenditure of Rs. 146.76 crores incurred by C.S.I.R. on its activities since the First Plan started. These figures speak for themselves.

[Sl. No. 21 (Para 4.17) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

Kindly see reply to recommendation at Sl. No. 19 of Appendix to the Report.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3|3|69-PU. Vol. III Pt. II dated 11th November, 1970].

CHAPTER V

RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH GOVERNMENT HAVE FURNISHED INTERIM REPLIES

Recommendation

How greatly the non-research staff outnumber the research staff in the organisation would be clear from the figures furnished to the Committee. 30 out of 34 establishments run by CSIR (in respect of which data has been provided to the Committee) had a total staff of 13,466 in 1968-69. Of this, scientific staff accounted for 3360, or about 25 per cent of the total staff, the balance being accounted for by auxiliary, administrative and class IV staff. The last category of staff alone accounted for about 30 per cent of the total number.

[Sl. No. 2 (Para 1.10) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

The observation of the Committee that the non-research staff in the organisation out number the research staff needs further examination. To judge the exact number of increase in staff, category-wise, namely, scientific, technical, auxiliary, technical class IV and administrative class IV during the last five years (1966—1971) will be required to be collected from the National Laboratories. The P.A.C. will be informed of the true picture in due course.

Nevertheless, the observations of the Committee contained at Sl. No. 5(ii) & (iii) of the Report with regard to the reduction of expenditure on non-research staff and recruitment of Class IV staff have been brought to the notice of the national laboratories for their guidance vide CSIR letter No. 16(132)68-E.I. dated 20th June, 1970—copy attached—Appendix-I.

The National Laboratories have also been intimated vide CSIR letter No. 16(172)/70—E.I. dated 25th September, 1970 copy attached (Appendix-II) that proposals for creating new scientific and technical posts should be more rigorously scrutinised by the Executive Council so as to avoid excessive expenditure on salaries and allowances.

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU. Vol. III Pt. II dated 4th December, 1970].

APPENDIX I

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

No. 16 (132) /68-E.I

Rafi Marg,

New Delhi-1, the 20th June, 1970.

To

The Heads of the National Laboratories/Institutes.

SUBJECT:—‘Core-Strength’ in the laboratories/Institutes.

Sir

I am directed to invite reference to this office letters of even number dated the 30th June, 1969 and 6th August, 1969 on the above subject wherein the laboratories/Institutes were requested to fix the ‘Core-strength’ of the staff in each cadre on the recommendations of the Executive Council. Most of the Laboratories/Institutes have not yet been able to get the recommendations of the Executive Council to fix the ‘Core-strength’ in the light of the guidelines contained in the letters referred to above.

The Public Accounts Committee in their report (1969-70) has *inter-alia* made the following recommendations:—

- (ii) Strict financial discipline should be observed in the creation of new posts and some guidelines provided to the laboratories as to the proportion of scientific staff to the rest of the staff. The C.S.I.R. have formulated some norms in this regard—1 research worker for 3 supporting technical and administrative staff—but it should be examined whether this could be tightened up further.
- (iii) The proportion of Class IV staff is quite obviously high. Further requirement in this category should be stopped and the scope for absorbing this staff, by suitable vocational training, examined. The Committee observe that a start in this regard has been made.

In order to give effect to the above recommendations of the PAC it is requested that the vacant posts in Class III and Class IV cate-

gories may not be filled up except for very special and urgent requirements.

Yours faithfully,
(Sd/-) K. G. KRISHNAMURTHI,
Secretary.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

No. 16 (132) /68-E.I.

Rafi Marg,

New Delhi, 6th August, 1969.

The Director,
National Chemical Laboratory,
POONA.

SUBJECT:—Fixing of 'Core-Strength' of Staff in National Laboratories/ Institutes.

Sir,

With reference to your letter No. 27 (4) /69-E.III dated the 9th July, 1969 on the above subject, I am directed to state that it was contemplated in this office letter of even number dated the 30th June, 1969 that the question regarding fixing of 'Core-strength' of auxiliary technical and other general service staff may also be placed before the Executive Council in the context of the level of activities and programmes of work for consideration. The question of 'Core-strength' of administrative and accounts staff may also please be placed before the Executive Council for consideration.

Regarding the Audit objection pointing out the imbalances of scientific staff, I am directed to state that any excess of scientific staff over the prescribed percentage should only be a welcome step in a laboratory and should not be taken as an imbalance. The supporting staff strength should not be excessive.

Yours faithfully,
(Sd/-) R. C. BISWAS,
Deputy Secretary.

Copy to:—

The Heads of National Labs/Instts. for information and necessary action.

(Sd/-) R. C. BISWAS,
Deputy Secretary.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

No. 16 (132) /68-E.I

Rafi Marg,

New Delhi-1, the 30th June, 1969.

From

The Secretary,
Council of Scientific & Industrial Research.

To

The Heads of National Laboratories/Institutes.

SUBJECT:—Fixing of 'Core-Strength' of staff in the National Laboratories/Institutes.

Sir,

I am directed to state that the information furnished by you in response to this office letter of even number dated the 23rd April, 1968 showing the extent of imbalances exist between the ratio fixed at 1:2:1 of research staff, supporting technical staff and administrative staff (including the strength of Class IV staff) has been considered. It has been decided that the Laboratories/Institutes may place before their Executive Councils the question of fixing 'Core-Strength' of Scientific, auxiliary technical and other general service staff like workshop library and documentation, maintenance of buildings and services etc. in the context of the level of activities of the respective organisations based on their programme of work and which is considered by them to be absolutely essential to run the normal activities. The Executive Council may also consider what should be the maximum overall size of the strength of staff in each category in the laboratory/Institute which the Head of the Laboratory/Institute may be in a position to supervise and manage efficiently.

The recommendation of the Executive Council on the subject may kindly be forwarded to this office separately for further consideration.

Yours faithfully,
(Sd/-) R. C. BISWAS,
Deputy Secretary.

APPENDIX II

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

No. 16 (172) /70-E.I

Rafi Marg,

New Delhi, the 25th September, 1970.

From

The Secretary,

Council of Scientific and Industrial Research

To

The Heads of National Laboratories/Institutes.

**SUBJECT:—Report (Part-I) of the Committee of Enquiry (CSIR)—
Implementation of recommendation thereof—Item No. 10.**

Sir,

I am directed to state that on the recommendation made by the Committee of Inquiry (CSIR) in Part I of Report under Item No. 10 of the Summary of Recommendations, the President, Council of Scientific and Industrial Research has been pleased to decide that:—

“The proposals for creating new posts should be more rigorously scrutinised by the Executive Council so as to avoid excessive expenditure on salaries and allowances.”

The aforesaid recommendation of the Sarkar Committee and the decision of the president, SCIR is brought to your kind notice for compliance in all cases. Whenever new posts are required to be created the proposal may be prepared in proforma attached with this office memo. 16(60)/64.E.I dated 26.3.1965 and the procedure mentioned therein may kindly be followed. A copy of the letter and the proforma referred are enclosed herewith for your guidance.

You are requested kindly to bring it to the notice of the Chairman and Members of the Executive Council for information/guidance.

Yours faithfully,

(Sd/-) NAU NIHAI SINGH,
Deputy Secretary.

Encls. As above.

Copy to:—

1. All Officers, Sections/Units/Divisions in the C.S.I.R.
2. Committee Section with the request that a copy of this letter may be sent to the Chairman and Members of the Executive Councils.
3. Parliament Cell.
4. All Accounts Officers of all Laboratories/Institutes.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

No. 16 (60) | 64-Ed

Rafi Marg,
New Delhi-1, the 26th March, 1965.

From:

The Secretary,
Council of Scientific and Industrial Research.

To

All the Heads of the National Laboratories.

SUBJECT:—Creation of additional Scientific posts.

Sir,

In continuation of this office letter of even number dated 28th August 1964, I am desired to invite your specific attention to the fact that in view of the tight budgetary position proposals for the creation of new posts should be put up before the Executive Council after thorough scrutiny. Such proposals should be put up before the Executive Council through the Scientific Advisory Committee and Building and Finance Sub-Committee with detailed information in the proforma as appended herewith. It will be particularly necessary to bring out before the Building and Finance Sub-Committee whether the posts which are proposed to be created will be accommodated from the sanctioned budget provision.

Accordingly all proposals for the creation of additional posts which are either placed before the Executive Council of the Laboratory are sent to this office should be submitted with the revised proforma as attached.

Kindly acknowledge receipt.

Yours faithfully,
(Sd/-) A. K. Mustafy,
Secretary.

Encis: As above.

Copy to all Section/Units of the Central Office for information and necessary action.

**PROFORMA TO ACCOMPANY PROPOSAL FOR CREATION
OF ADDITIONAL STAFF IN NATIONAL LABORATORIES**

Designation of the post and scale of pay	No. of posts required.	Project for which posts are required.	Approved duration of the Project.	Existing strength of Scientists category-wise in the project.	Sanctioned strength of this category of posts in the lab.	Whether cost of the Justification for additional staff can be met from the sanctioned allotment of lab. for the current and next year.	Posts sanctioned but not filled.	
1	2	3	4	5	6	7	8	9

Recommendation

The Committee have earlier in this Report referred to the proliferation of staff in the CSIR. This case illustrates what proportions this phenomenon has assumed. The Committee would like the CSIR to make an immediate assessment of the extent of surplus staff and transfer their services to other needy organisations.

[Sl. No. 7 (Para 1.20) of Appendix to the 122nd Report (Fourth Lok Sabha)].

Action Taken

The four Technical Units became part of the DGSIR's establishment as Divisions at the Headquarters with effect from 28th February, 1968 according to the decision of the Governing Body of the CSIR taken at its meeting held on 25th November, 1967 on the recommendations of the Fourth Plan Committee as commented upon by the Group of Scientists.

On the basis of this decision of the Governing Body, the Vice-President, CSIR, appointed three Expert Groups with the following terms of reference for the three Divisions at the CSIR Headquarters:—

- (i) to review the work done;
- (ii) to determine the future programme of work; and
- (iii) to fix the staff strength.

However, it was considered by the President and Vice-President, CSIR, that in view of the fact that the Inquiry Committee (CSIR) is seized of the matter, it would be better not to proceed with the Group set up earlier for considering the work and staff requirements of the three Divisions concerned.

The Inquiry Committee was accordingly requested to take up consideration of these three Divisions at the Headquarters *vide* D.O. No. 9/9/68-PU dated 22nd/23rd July, 1969 (Appendix-I).

The Inquiry Committee intimated *vide* their D.O. letter No. 7/36/69-CI (CSIR) dated 29.8.69 (Appendix-II) that it will not be

possible to examine the problems of the four Technical Divisions at the CSIR Headquarters in isolation but it will be considered as a part of item (iii) of the Committee's terms of reference.

The Inquiry Committee has submitted Part-I of their Report dealing with personnel policies of the CSIR (the first term of reference). Report on the other terms of reference has not yet been received.

In the circumstances, action on the above recommendation of the P.A.C. can therefore be taken only after the Report of the Inquiry Committee on other term of reference, *viz.*, ways and means of improvement of CSIR, is received and considered.

The above replies have been vetted by Audit (A.G.C.R.) *vide* their D.O. letter No. RR25-7|70-71|395 dated 24th October, 1970 (Copy enclosed—Appendix-III).

[Cabinet Secretariat, Deptt., of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III. Pt. II dated 4-12-1970].

APPENDIX I

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

D.O. No. 9|9|68-PU.

New Delhi, July 22/23, 1969.

Secretary, CSIR &
Jt. Secretary to the
Government of India (*Ex-officio*).

Dear Shri Sarkar,

The Fourth Plan Committee in its First Report made the following recommendations on the Technical Directorates at the Headquarters of the CSIR:—

Technical Directorates at the Headquarters.

"The Committee noted that these Directorates were set up in April, 1966 as a part of advance action for the IV Plan. The Committee was of the view that the units which were

meant to perform certain staff functions and assist the Director-General in his work should not have separate existence as they had at present with their own Executive Councils and powers as if they were similar to the Laboratories and their being so set up was incompatible with the functions which these units were expected to perform. It was clear that certain essential functions which the DGSIR had to carry out as part of his responsibilities as the Chief Executive of CSIR, had been entrusted to these separate organisations. The Committee was of the view that the executive and coordinating functions is a direct responsibility of the DG. In discharging this responsibility he is, of course, advised by the Directors of National Laboratories and is assisted by the Secretariat at the Headquarters.

The Committee also noted that there was certain amount of overlapping of work in the collection and processing of information between these Directorates, the INSDOC and the Publications and Information Directorates. It was of the view that there should be one organisation in the CSIR for collection, processing and dissemination of information.

As regards industrial liaison, it was the view of the Committee that the best manner of industrial liaison was for the laboratories, to keep in close contact with the related industries. This was an essential function for which separate Directorate at the Headquarters was not required.

In regard to planning, the Committee against felt that it was one of the responsibilities of the DG to ensure coordinated planning in the CSIR laboratories as a whole, and this could not be done effectively through a separate Directorate with its own Executive Council. In the opinion of the Committee most of the work which could not be done by the existing section of the Secretariat should be done by constituting technical groups. It was agreed that the DG should make an assessment of the surplus technical staff at the Headquarters and transfer them, if any, to the laboratories.

The Committee noted that some studies carried out on various aspects of science policy and organisation in India had been published as if they were official publications of the

CSIR and that these had been issued without the approval of the DG. The Committee felt that while freedom of publication was desirable and necessary where research work was concerned, publications based on such studies could not be considered at par with scientific research publications. Matters involving policies and views of the CSIR as a whole should not be published without appropriate authorisation. The Committee, therefore, recommended that the practice of issuing such publications under official auspices should be stopped.

As far as the Central Design and Engineering Organisation was concerned, the Committee was of the view that a central organisation cannot efficiently discharge the functions of preparing design and engineering processes falling in widely different technological areas. These have to be carried out in the concerned laboratories as an undifferentiated function or by consulting firms or bureaus. The Committee, therefore, recommended that this Organisation at headquarters should be disbanded as soon as possible and the available staff absorbed in the laboratories."

2. The Group of Scientists in their Report had recommended that—

- (i) The Directorates should be part of the Headquarters' Establishment of the DGSIR and should be called 'Divisions' and their function is to assist the DGSIR;
- (ii) They should not have Executive Councils;
- (iii) They should not have powers like the Directors of National Laboratories; and
- (iv) There should be a review of the work done or each of the Directorates; in the case of CD & EO the review could best be done by the Directors of the National Laboratories.

3. The Governing Body of the CSIR at its meeting held on 25th November, 1967 approved the Report of the Fourth Plan Committee

as commented on by the Group of Scientists. On the basis of this decision of the Governing Body, the Vice-President, CSIR, appointed three Expert Groups mentioned below with the following terms of reference for the three Divisions at the CSIR Headquarters:—

- (i) to review the work done;
- (ii) to determine the future programme of work; and
- (iii) to fix the staff strength.

Research Co-ordination and Industrial Liaison

1. Shri G.L. Bansal, Secretary-General, Federation of Indian Chambers of Commerce & Industry, New Delhi - 1.	Chairman
2. Dr. G.P. Kane, Officer on Special Duty, Ministry of Industrial Development & Company Affairs, New Delhi.	Member
3. Dr. P.S. Gill, Director, Central Scientific Instruments organisation, Chandigarh.	Member

Survey, Research and Planning

1. Prof. P.C. Mahalanobis, FRS, 6, King George Avenue, New Delhi-II.	Chairman
2. Dr. A. Lahiri, Director, Central Fire Research Institute, Jealgora.	Member
3. Dr. K.R. Nair, Director, Central Statistical organisation, New Delhi.	Member

Scientific and Technical Personnel

1. Dr. K.A. Hirani, Chairman, CIPLA Laboratories, 289, Belasis Road, Bombay.	Chairman
2. Dr. M.L. Dhar, Director, Central Drug Research Institute, Lucknow.	Member
3. Director, Institute of Applied Manpower Research, New Delhi.	Member

4. The meetings of the Expert Groups for Research Co-ordination and Industrial Liaison and Division for Scientific and Technical Personnel were fixed but were later postponed.

5. It has now been considered by the President and Vice-President, CSIR, that in view of the fact that the Inquiry Committee is seized of the whole subject, it would be better not to proceed with the Groups set up earlier for considering the work and staff requirements of the three Divisions concerned and that the Inquiry Committee may be requested to take up this work on priority basis and they can be assisted by a review of the position by the DGSIR. President and Vice-President, CSIR, have also decided to dissolve the Expert Groups by sending them appropriate letters explaining the position.

6. As desired by the Vice-President, CSIR, the DGSIR will prepare a review of the working of the Divisions giving his suggestion. This will follow. In the meantime, it is requested that the Inquiry Committee may take up consideration of these three Divisions at the Headquarters.

With kind regards,

Yours sincerely,

(Sd.) K. G. KRISHNAMURTHI.

Shri S. K. Sarkar, IAS,
Secretary,
Committee of Inquiry (CSIR),
5, Jor Bagh,
New Delhi—3.

APPENDIX II

COMMITTEE OF INQUIRY (CSIR)

S. K. Sarkar, IAS
Secretary

D.O. No. 7/36/69-CI (CSIR)
5, Jor Bagh,
New Delhi-3.

Dated: 29th August, 1969.

Dear Shri Krishnamurthi,

Please refer to your D.O. No. 9(9)68-PU, dated 23-7-1969.

The Committee in its meeting on 25th August, 1969 decided "that the CSIR may be informed that it will not be possible to examine the problems of the four Technical Directorates at the CSIR headquarters in isolation but it will be considered as a part of item (iii) of the Committee's terms of reference."

Yours sincerely,
(Sd.) S. K. SARKAR.

Shri K. G. Krishnamurthi,
Secretary,
CSIR, New Delhi.

APPENDIX III

D. S. Bist,

Asstt. Accountant-General

D. O. No. RR25-7|70-71|395

OFFICE OF THE ACCOUNTANT GENERAL, CENTRAL REVENUES, INDRAAPRASTHA ESTATE

New Delhi-1, the 24th Oct. 1970

Dear Shri Ramanathan,

Kindly refer to your D.O. letter No. 3/3/69-PU Vol. III Pt. II dated 26.9.70 forwarding draft 'Notes' in pursuance of the Public Accounts Committee's recommendations at Sl. Nos. 1, 2, 3, 6 and 7 of the Appendix to their 122nd Report (4th Lok Sabha).

2. The following comments are offered on the draft 'Notes'.

(i) Sl. Nos. 1 to 3

(a) Recommendations of the Public Accounts Committee at Sl. Nos. 1 and 2 deal with the growth of non-research activities of the C.S.I.R. and out-numbering of research staff by non-research staff. In reply to the recommendation at Sl. No. 3 it has been stated that the C.S.I.R. has appointed a Committee to consider reclassification of all existing posts under it into scientific, technical and administrative in pursuance of the recommendation of the Sarkar Committee. The Public Accounts Committee have observed that if the posts are classified on a functional basis it would be found that the organisation employs a larger number of non-research staff. The reply to the recommendations at Sl. Nos. 1 and 2 is silent about the steps taken to reduce the expenditure on and the number of the non-research staff. The 'Note' may please be amplified by incorporating information in this behalf.

(b) It appears from para 1.8 of the Public Accounts Committee's 122nd Report (4th Lok Sabha) that the Committee of Enquiry had recommended that the proposal for creating new posts should be more rigorously scrutinised by the Executive Council so as to avoid excessive expenditure on salaries and allowances and the transfer of posts should be stopped. The action taken by the C.S.I.R. on this observation of the Committee may please be stated in the 'Note'.

(ii) A few minor modifications/additions indicated in lead pencil in the draft 'Notes' (copy enclosed) against portions side-lined in blue chalk may also please be incorporated before the 'Notes' are submitted to the Lok Sabha Secretariat.

Yours sincerely,

Sd./- D. S. Bist

Shri L. Ramanathan,
Under Secretary,
Council of Scientific &
Industrial Research, New Delhi.

"TRUE COPY"
ATTESTED
(L. Ramanathan)
Under Secretary, C.S.I.R.

Recommendation

The Committee are aware that this situation is not entirely of CSIR's making. But it would appear that the organisation has not been sufficiently responsive to the needs of industry. As early as 1965, it organised a 'get-together' with industry, as a result of which 168 priority research projects were formulated. 40 of these projects were "already in progress" at that time and another 11 were dropped. The remaining 117 are stated to have been referred to the laboratories "for giving high priority", apparently they are yet to get under way.

[Sl. No. 11 (Para 2.14) of Appendix to the 122nd Report (Fourth Lok Sabha)].

From its very inception the CSIR has been making continuous efforts to maintain relationship with the industry. The position is explained in reply to recommendation at Sl. No. 22 of the Report.

The recommendations of Get-together (1965) were sent to concerned laboratories for implementation. Only when the question of additional resources was raised by laboratories, the adjustment of those projects which were in the priority category was taken up and all CSIR laboratories were advised to accommodate the priority projects within their regular programmes. The laboratories have accordingly accommodated well identified projects within their program-

mes except those on which no R & D was called for, being well known processes or products wanting suitable entrepreneurs. It may not, therefore, be presumed that the remaining 117 projects are yet to get under way since these projects formed part of the programmes of the laboratories.

The position of number of projects in progress in the national laboratories and their present status will have to be ascertained individually and the information furnished to the Committee in due course.

[Cabinet Secretariat, Deptt., of Scientific and Industrial Research (C.S.I.R.) No. 3/3/69-PU, Vol. III, Pt. II dated 8-12-1970].

Recommendation

Following a suggestion made at the meeting of the Governing Body of the CSIR in November, 1967, a Committee was set up "to consider measures for bringing industry and science close to each other". This Committee is yet to finalise its report.

The Committee feel that the existing situation is most unsatisfactory, as it has led to the laboratories functioning in a vacuum. Urgent remedial measures are called for and the Board of Scientific and Industrial Research and the Governing Body of the CSIR should promptly move in the matter. The Committee have later in the report made certain suggestions in this regard.

[Sl. No. 12 (Paras 2.15, 2.16) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action taken

The Report of the Committee has been received and is under consideration of the CSIR.

As regards steps already taken to bring science and industry together in the recent past, reply given to recommendation at Sl. No. 8 may kindly be referred to.

[Cabinet Secretariat, Department of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III Pt. II dated 4-12-1970].

Recommendation

The data given in this Section of the Report would show that the activities of the Corporation has been on a very modest scale. The

Corporation was patterned on the lines of a similar organisation set up in U.K. Whereas its counterpart in U.K. sponsored a number of developmental projects, in collaboration with industry, and has been functioning as a channel for development of a significant number of inventions emanating from the commercial sector, the Corporation in India has not been able to build up a very satisfactory liaison with industry in the country so far. Upto 31st March, 1969, the total number of processes referred to the Corporation from private individuals was 26 out of which only one process has been licensed and is in production. As for developmental projects, the Corporation has, since its inception, sponsored 21 schemes of which only one was a joint venture with industry. It is obvious that the Corporation has yet to forge organic links with industry, without which it is not likely to have any great degree of success even in its efforts to get entrepreneurs to take up processes developed in the laboratories. The Committee note that the Board of the Corporation has been reconstituted and that steps are being taken to streamline the arrangements for industrial liaison. The hope that this would bring about an improvement in the performance of the organisation.

[Sl. No. 26 (Para 4.40) of Appendix to 122nd Report (Fourth Lok Sabha).]

Action taken

The new Board of Directors on assuming charge decided that N.R.D.C. should afford facilities for further development of the processes developed in the laboratories. The Chairman of the N.R.D.C. addressed a circular letter to all the Heads of Research Establishments seeking proposals for further development of the processes either in pilot projects, prototype and the like. The response, however, has not been encouraging. A copy of the circular letter, a list of the Institutions addressed and the tabular statement of the replies received, together with the comments of the N.R.D.C., are enclosed herewith (ANNEXURES I & II). It is proposed to pursue this matter further by having direct personal discussions between the Managing Director, NRDC, and the Heads of the Laboratories.

[Ministry of Education and Youth Services O.M. No. G-25015/12/70-Accounts. II dated 21.11.1970].

ANNEXURE I

NATIONAL RESEARCH DEVELOPMENT CORPORATION OF
INDIA, MINISTRY OF EDUCATION & Y.S.MANDI HOUSE, LYTTON ROAD,
New Delhi.

R. VENKATARAMAN

Chairman
N.R.D.C. of India
(Member, Planning Commission)

D.O. No. 11-NRDC (i)/69

Dated: 17th November, 1969.

Dear

As you are aware one of the objects of National Research Development Corporation is to instal and work pilot/prototype/semi-commercial units or fully commercial plants to develop a particular invention or inventions and ensure production from such invention or inventions. The developmental activity of N.R.D.C. is to take up ideas worked out in the laboratories and to make detailed investigations and survey of such inventions. If they appear promising, NRDC undertakes to develop them to the stage where the industry is prepared to take them for commercial exploitation.

In order to achieve the above objective, N.R.D.C. provides developmental expenditure and sponsores setting up of pilot/prototype or semi-commercial units and where possible with the participation of the industry. In the past 15 years, N.R.D.C. has sponsored some 20 pilot/semi-commercial units on various schemes at different laboratories, out of which some have reached the stage of commercial utilisation by industry while others are in progress.

I am glad to inform you that a provision of Rs. 2.00 crores has been made by Planning Commission in the Fourth Five Year Plan for NRDC to provide financial assistance in the execution of developmental projects from various research organisations.

I shall, therefore, be grateful if you let us have specific proposals for financing developmental projects in your Institute during the Fourth Five Year Plan so that a phased programme may be evolved. The proposals may be forwarded through CSIR.

With kind regards,

Yours sincerely,
Sd./- R. VENKATARAMAN.

**LIST OF COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH
LABORATORIES**

1. Dr. A.R. Verma, Director, National Physical Laboratory, Hill- side Road, New Delhi.12.	15. Dr. A. K. De, Director, Central Mechnaical Enginerring Res. Instt., Durgapur.
2. Dr. B.D. Tilak, Director, National Chemicial Laboratory, Poona-3.	16. Dr. G.S. Sidhu, Director, Regional Research Lab., Hyderabad Dn. 9.
3. Dr. A. Lahiri, Director, Central Fuel Res., Instt., Jealgora (Dhanbad).	17. V. Ganapathy, Director, Regional Research Laboratory, Jammu- Tawi.
4. Shri K.D. Sharma, Director, Central Glass & Ceramic Fes. Instt., Calcutta-32.	18. Dr. M.S. Iyanger, Director, Regional Research Laboratory, Jorhat (Assam.)
5. Dr. Y. Nayudamma, Director, Central Leather Res. Instt., Adyar. Madras.	19. Prof. M.V. Bopardikar, Director, Central Public Health Engineering Re- search Institue, 70/1/Civil Lines, Nag- pur.
6. Dr. M.L. Dhar, Director, Central Drug Res. Instt., Lucknow.	20. Dr. S.R. Valuri, Director, National Aeronautical Res. Laboratory, Bangalore.
7. Dr. H.A.B. Parpia, Director, Central Food Tech. Res., Instt., My- sore.	21. Dr. P.S. Gill, Director, Central Scientific Instruments Organi- sation, Chandigarh.
8. Dr. H.V.K. Uduppa, Scientist Incharge, Central Electro-Chemicial Research Inst- itute, Karaikudi.	22. Dr. S.A. Zaidi, Director, Indian Toxicological Res., Centre., Lucknow.
9. Prof. Dinesh Mohan. Director, Central Building Res. Instt., Roorkee.	23. Prof. G.S. Ramaswamy, Director, Structural Engineering, Research Insti- tute, Roorkee.
10. Dr. D.S. Datar, Director, Central Salt & Marine Cehmicals Re- search Instt., Bhavanagar.	24. Dr. Hari Narain, Director, National Geophysical Research Insti- tute, Hyderabad.
11. Dr. L.B. Singh, Director, National Botanic Gardens, Lucknow.	25. Dr. V.A. Alterkar, Director, National Metallurgical Labouratory, Jamshedpur.
12. Dr. S.K. Sinha, Director, Central Mining Res. Station, Dhanbad.	26. Dr. Suba Raju, Director, Central Road Research Institute, P.O. C.R.R.I., Okhla, New Delhi.
13. Dr. Amarjit Singh, Director, Central Electronics Engineering Re- search Instt., Pilani.	27. Shri G.S. Chowdhury, Director, Regional Research Laboratory, Rhubaneswar.
14. Dr. R. N. Chakravarti, Director, Indian Instt., for Experimental Medi- cine, 4 Raja S.C. Mallik Road, Calcutta.	28. Dr. M.G. Krishna, Director, Indian Institute of Petroleum, Dehra Dun.

ANNEXURE II
LIST OF PROJECTS

SI. No.	NAME OF THE LABORATORY/INSTITUTE	NAME OF THE PROJECT	TENTATIVE COST OF THE PROJECT	REMARKS
1	2	3	4	5
1.	Indian Council of Agricultural Research, New Delhi.	Agricultural Implements (20 Types)	Rs. 3.00 lakh	<p>The Board accepted the recommendations of the committee (consisting of Sh. K.B. Rao, Shri H.P. Nanda and Dr. B.D. Kalekar) constituted by it at its last meeting and felt that NRDC may provide assistance for commercial exploitation and decided that ICAR may be asked to intimate the assistance they need from NRDC for the preparation of the working drawings of the Prototype.</p> <p>The Board further decided that after the preparation of the working drawings, the availability of the same may be advertised in the press and drawings be furnished to the interested entrepreneurs free-of cost.</p> <p>Consequently ICAR have been requested to intimate us the assistance they need from NRDC for the preparation of the working drawings, no reply has been received so far.</p>
2.	Forest Research Institute, Dehradun.	High Yield Pulping	Rs. 46.35 lakh (Capital) Rs. 1.11 lakh (Recurring)	The proposal was studied. Further information the proposal was requested and the same is being awaited from the Institute.
3.	Regional Research Laboratory, Jorhat.	Non-heat treatment process for the production of 10 ton/day iron ore pellets.	Rs. 3.25 lakh (Capital) Rs. 3.80 lakh (Recurring) Rs. 1.50 lakh (C.S.)	The steel industries have been contacted to examine the scope of utilization of iron ore pellets in blast furnaces. Two replies have been received and a few more are awaited.
4.	Regional Research Laboratory, Jorhat.	Production of Single Cell Protein from Petroleum Hydro-carbons.	Rs. 17.66 lakh (Capital) Rs. 7.80 lakh (Recurring)	The Board at its meeting held on 4-7-1970 noting that there has been no consulting engineer's report and that a pilot plant has already been estab-

blished in Baroda, constituted a committee consisting of the following:—

1. Dr. B.D. Nag Chaudhuri (Convener)
2. Dr. B.D. Kalelkar
3. Dr. T.K. Roy
4. Dr. Atma Ram.

to look into the various aspects of the project and submit its recommendations to the Board. Attempts are being made to convene the meeting of the Committee.

5 Regional Research Laboratory, Jorhat Deinking of News-paper Rs. 2.25 lakh (Capital) Rs. 2.00 lakh (Recurring)

The Board considered this proposal at its meeting held on 4-7-1970 and decided that the following information may be collected, and the matter may be placed before the Board for consideration :

1. Is the technology of reclamation of news paper by de-inking already in existence in the country?
2. Is any paper machinery manufacturer interested in this development?

In pursuance of the Board decision letters have already are being written and replies received are being Examined.

6 Defence Research Lab. Manufacture of DEET (M) Kanpur. Rs. 2.5 lakh

These proposals were personally discussed by Managing Director N.R.D.C. with Dr. J. N. Nanda Director, DRL (M), Kanpur, and it has been decided to depute an officer of NRDC to the Institute to see the processes and collect further information on the same.

7 Defence Research Laboratory (M) Kanpur V.F.I. Paper Rs. 1.00 lakh

8 -do- Manufacture of FELT after making stretched wool. Rs. 2.00 lakh

1	2	3	4	5
9	Central Leather Research Institute, Madras	Designing and fabrication of novel leather goods, functionally western but artistically Eastern		Detailed proposals are still being awaited.
10	-do-	Manufacture of Tanin extract using cashew test plant to be located at Quilon (kerala)		
11	Central Fuel Research Institute, Jealgora	Multi-purpose fluid Bed Reactor Unit	Rs. 20.00 lakh	In view of the fact that a proposal for the Fluidise Bed technique for the manufacture of Phthalic Anhydride was earlier financed by NRDC, this proposal is being further investigated.
12	National Dairy Research Institute, Karnal.	Manufacture of rennet from fistulated calves	Rs. 3.34 lakh (Capital) Rs. 6.93 lakh (Recurring)	These proposals appear to have a good potential. However the information supplied is not adequate. Further information is being awaited.
13	-do-	Roughage processing	Rs. 11.00 lakh (Capital) Rs. 6.57 lakh (Recurring)	
14	National Metallurgical Lab., Jamshedpur.	Pre-reduction of blast furnace burden	Rs. 15.00 lakh (Capital)	Details supplied on the proposals are inadequate. Additional information is being awaited.
15	-do-	Sponge Iron for Alloy Steel	Rs. 11.5 lakh (Capital)	
16	-do-	A multipurpose High pressure pilot plant for Metal Extraction.	Rs. 22.5 lakh (Capital)	

Recommendation

The Committee would like a comprehensive investigation to be made into the case to pinpoint responsibility. Steps should also be taken forthwith for the disposal of the equipment, if there is no further use for it, so as to avoid further losses.

[Sl. No. 48 (Para 5.51) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

As already mentioned in the report the matter is still under consideration of the President, CSIR. An investigation, if required, will be made to find out whether any responsibility is to be fixed. The PAC will be advised in the matter in due course.

[Cabinet Secretariat. Deptt., of Scientific and Industrial Research (CSIR) No. 3/3/69-PU. Vol. III. Pt. II dated 4-12-1970].

Recommendation

The Committee are distressed over the delay in recovering a sum of Rs. 5.79 lakhs spent between March, 1964 to March 1969 for erecting a Plant in the premises of a firm at Kandla for imparting technical know-how to it for the manufacture of Potassium Chloride and Epsom Salts from mixed salt. Inspite of the fact that the Plant has been commissioned from April, 1966 and that there was a clear understanding with the firm that, on its satisfactory completion, the plant would be transferred to the firm at cost price plus payment of royalty, the terms and conditions of the transfer and the question of recovery of the cost of the Plant and the quantum of royalty payable by the firm still remains to be settled. The Committee desire that the matter should be settled with the firm without further delay.

[Sl. No. 56 (Para 5.85) of Appendix to the 122nd Report—(Fourth Lok Sabha)].

Action Taken

The matter was further discussed by the Director, Central Salt and Marine Chemicals Research Institute, Bhavnagar with the Chairman and Director of M/s. United Salt Works & Industries Ltd. at Bombay on 3rd July, 1970 and the Director of the firm also discussed this matter at the CSIR on 23rd September, 1970. The
3022 LS—10.

Director of the firm said that he would be writing shortly to the Director-General, Scientific and Industrial Research making proposals on behalf of the firm.

The above replies have been vetted by Audit (A.G.C.R.) vide their D.O. letter Nos. RR25-10/70-71/403 and RR25-2/70-71/408 dated 26th October, 1970 (copies enclosed—Appendices—I & II).

[Cabinet Secretariat, Department of Scientific and Industrial Research (C.S.I.R.) No. 33/69—PU. Vol. III. Pt. II dated 2-11-1970]

APPENDIX I

D. S. Bisht,
Asstt. Accountant General.

D.O. No. RR25-10/70-71/403

OFFICE OF THE

ACCOUNTANT GENERAL, CENTRAL REVENUES

INDRAPRASTHA ESTATE

New Delhi—1, the 26th October, 1970

Dear Shri Ramanathan,

Kindly refer to your D.O. letter No. 33/69-PU. Vol. III Pt. II dated 12-10-1970 forwarding draft 'Notes' on the recommendations contained in Serial Nos. 49 to 53 and 56 of Appendix to the Public Accounts Committee's 122nd Report (4th Lok Sabha).

2. We have no comments to offer on the draft 'Notes'.
3. A copy of each of the draft 'Notes' and the Council's other papers are sent herewith.

Yours sincerely,

Sd/-

(D. S. BISHT)

Shri L. Ramanathan,
Under Secretary,
Council of Scientific and Industrial Research,
Rafi Marg,
NEW DELHI.
TRUE COPY

ATTESTED

(L. Ramanathan)
Under Secretary
Council of Scientific
and Industrial Research,
Rafi Marg, New Delhi.

APPENDIX II

D. S. Bisht,
Asstt. Accountant General,
Central Revenues.

D.O. No. RR25-2/70-71/408
OFFICE OF THE

ACCOUNTANT GENERAL, CENTRAL REVENUES
INDRAPRASTHA ESTATE

New Delhi-1, the 26th Oct., 1970.

Dear Shri Ramanathan,

Kindly refer to your D.O. letter No. 33-69-PU, Vol. III Pt. II dated 11-9-70 forwarding draft 'Notes' in pursuance of the Public Accounts Committee's recommendations contained in Serial Nos. 54 and 55 of the Appendix to their 122nd Report (Fourth Lok Sabha).

2. We have no comments to offer on the draft 'Notes'.
3. A copy of each of the draft 'Notes' alongwith the Council's papers is returned herewith.

Yours sincerely,
Sd/-
(D. S. Bisht)

• Shri L. Ramanathan,
Under Secretary,
C. S. I. R., Rafi Marg,
NEW DELHI.

TRUE COPY:

ATTESTED:

Sd/-
(L. RAMANATHAN)
Under Secretary,
Council of Scientific & Industrial Research

NEW DELHI;
March, 1972.

Chaitra, 1894 (S).

ERA SEZIHYAN,
Chairman
Public Accounts Committee.

APPENDIX

Summary of main Conclusions/Recommendations

Serial No.	Para No of Report	Department Concerned	Conclusion Recommendation
1	2	3	4
1	13	Council of Scientific & Industrial Research	<p>The Committee hope that the final replies in respect of those recommendations to which only interim replies have so far been furnished, will be submitted to them expeditiously after getting them vetted by Audit.</p>
2	17	-Do-	<p>The Committee would like to emphasise the need for economising expenditure on the non-research staff in the Council of Scientific and Industrial Research including its headquarters. In pursuance of the recommendations of the Committee of Inquiry (Sarkar Committee) the General Body of the Council have appointed a Broad Based Committee to consider re-classification of all the existing posts into scientific, technical and administrative. The Committee hope that after reclassification of the posts the exact proportion of the non-research staff would be ascertained and necessary measures taken to eliminate such staff rendered surplus.</p>
3	18	-Do	<p>The Committee desire that as suggested earlier, the CSIR should examine whether the existing norm of 3 supporting technical and</p>

4

1.11

-Do-

administrative staff for every research worker formulated by the Council could be tightened up further. While reviewing the norm, the Council should take into consideration the position obtaining in leading private research institutes in the country.

5

1.12

-Do-

The Committee wish to reiterate that the results of the research work done by the Council of Scientific and Industrial Research are not commensurate with the expenditure on the organisation. According to Council's own admission the requisite integration of research and production as obtaining in Western countries is lacking in India. As regards liaison between Industry and Research it is stated that it should not merely be considered the responsibility of the laboratory and its scientists but also of the users and that in many cases reliance is placed by the latter more on foreign agencies than on our own. The Committee, therefore, desire that Government should investigate the reasons for preference of public and private sector industries for foreign collaboration and take necessary steps so that indigenous processes may commend themselves to these industries in future.

1	2	3	4
6	1.15	Ministry of Education and Youth Service (NRDC)	The Committee appreciate that the absence of performance guarantees in the case of the processes of the CSIR released to the Industry results in a lower rate of royalty paid to NRCD than to foreign collaborations. The Committee hope that the NRCD will expeditiously examine the question of filling up the lacuna in consultation with the Council of Scientific and Industrial Research and Director General, Technical Development etc.
7	1.18	Council of Scientific & Industrial Research	The Committee are of the opinion that there should be an investigation into the installation of the Coal Gasification Plant in the Regional Research Laboratory, Hyderabad with a view to fixing responsibility and they would like this to be expedited.
8	1.19	-Do-	The Committee would like to be informed about the progress made in utilisation/disposal of the plant and equipment.

Serial No.	Name of Agent	Address	Phone No.	Name of Agent	Address	Phone No.
DELHI						
21.	Sain Book Agency	Connaught Place, New Delhi.	11	33. Oxford Book & Stationery Company, Scindia House, Connaught Place, New Delhi-1.	63	
22.	Mittal & Sons, 3141, 1st All Bazar, Mori Gate, Delhi		3	34. People's Publishing House, 22nd Jhamai Road, New Delhi.	76	
23.	M. Ram & Sons, Kash- mir Gate, Delhi-6.		9	35. The United Book Agency, 48, Amrit Kaur Market, Pahar Ganj, New Delhi.	88	
24.	M. Jaina & Brothers, Karol Gate, Delhi.		11	36. Hind Book House, 52, Jan- path, New Delhi.	95	
25.	The Central News Agency, 23/90 Connaught Place, New Delhi.		15	37. Bookwell, 4, Sant Nar- singh Colony, Kisanvay Camp, Delhi-9.	96	
26.	English Book Store, Connaught Circus, Delhi.		20	MANIPUR		
27.	Leoni Book Store, 42, Municipal Market, Janpath, New Delhi.		23	38. Shri N. Chabu Singh, News Agent, Raniwal Paul High School Annex, Imphal	77	
AGENTS IN FOREIGN COUNTRIES						
28.	Brothers, 188, Laj- pati Market, Delhi-6.		27	39. The Secretary, Establish- ment Department, The High Commission of India, India House, Aldwych, LONDON W.C.-2.	59	
29.	Jayans Book Depot, Chaw- pawala Khan, Karol Bagh, New Delhi.		66			

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